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## Address.

# THE PRESENT STATUS OF THE ANTI-TUBERCULOSIS WORK IN NEW HAMPSHIRE AND SOME SUGGESTIONS FOR THE FUTURE.*


BY ROBERT B. KERR, M.D., CONCORD, N. H.,

*Physician in Charge, Pembroke Sanatorium; Chairman of Committee Appointed by the New Hampshire Medical Society to investigate the extent of Tuberculosis in New Hampshire and make recommendations for legislative relief.*


### 1.

THE TUBERCULOSIS PROBLEM IN NEW HAMPSHIRE.

(1) Tuberculosis is the most prevalent disease in New Hampshire and at the same time one of the most preventable.

(2) It causes more than 38% of all the deaths between the ages of 20 and 30 in New Hampshire.

(3) A conservative estimate places the economic loss to our state from tuberculosis as close on to a million dollars a year.

(4) (*a*) Eighty-four per cent. of all the deaths from tuberculosis in New Hampshire occur in the southern and central counties.

(*b*) More than one-half of all the deaths from tuberculosis in New Hampshire occur in Hillsborough and Merrimac counties.

(*c*) More than one-third of all the deaths from tuberculosis in New Hampshire occur in Manchester, Nashua and Concord.

(*d*) More than one-fifth of all the deaths in New Hampshire from tuberculosis occur in Manchester.

The great prevalence of tuberculosis in these sections of the state is due in part to the fact that more than two-thirds of the population of the state lies below Concord and also because of the overcrowding due to the large manufacturing industries. It is in the large, and even to a surprising degree in the small manufacturing districts, that we find the Great White Plague claiming its largest number of victims.

(5) Up to May, 1914, there were close on to 2000 active cases reported to the state board of health. In estimating the probable number of cases of tuberculosis in a given territory some authorities, taking 20 as a factor, multiply the number of deaths by that, and so figure the number of cases. More conservative authorities, particularly Philip of Edinburgh, use 10 as a factor. This figure was used as a factor by the Massachusetts Legislative Tuberculosis Commission in figuring the number of cases of tuberculosis in Massachusetts. Taking 10 as a factor and multiplying the number of deaths from tuberculosis in 1911 in New Hampshire by that, we have a little over 5000 cases of tuberculosis in our state.

(6) The State Board of Vital Statistics reports a marked decrease in the mortality from tuberculosis in this State.

The New Hampshire State Board of Health in commenting upon this urges the establishment of

* Read in symposium on Tuberculosis, before the Merrimack County Medical Society, April 13, 1915.

sanatoria to maintain this decrease, believing that "this reduction has taken place among the so-called better classes, or in other words, among the more prosperous, and perhaps more intelligent part of the community. It is these people who are more informed and who pay more attention to sanitary progress, and who, moreover, have the means at their command to enable them to do so. To reduce tuberculosis to its lowest terms sanatoria become a necessity.

(7) Tuberculosis is very largely a disease of the poor in New Hampshire, particularly among the shoe-shop and mill operative part of the population. The housewives and housekeepers are also very prone to this disease. The spread of this disease has been proven to be largely a matter of family contagion in the over-crowded unsanitary homes of the very poor.

2.

OUR AIM IN THE CAMPAIGN AGAINST TUBERCULOSIS.

The aim in the campaign against tuberculosis is the *control* and ultimate *suppression of the disease*. All over the world and the United States a vigorous campaign is under way to accomplish this end. To control and suppress tuberculosis requires:—

(1) Control of the tuberculous.
(2) Prevention of new cases.
(3) Education of the people.

1. *Control of the Tuberculous.* A comprehensive plan for the control and suppression of tuberculosis must reach every consumptive in every stage of the disease and provide proper supervision in a sanatorium, hospital, or the home. This is our ultimate aim; only in so far as we accomplish this shall we stamp out this disease. It is not enough to care for a few consumptives,—we must reach all or necessarily while we are caring for the few the great number of unsupervised ones will spread the infection. Every consumptive must be rendered innocuous—only as we do this will tuberculosis be eradicated from New Hampshire. The consumptive is the source of the infection. Any reasonable and comprehensive plan for the suppression of the disease must begin with him.

The time is not far distant when every uncared for, unsupervised consumptive will be regarded as a disgrace to the medical profession as well as to the community at large.

When we realize that there are 4000-5000 cases in the state we can see the magnitude of the problem and the immense amount of work which must be done to accomplish the fulfillment of our ultimate aim. However, this should cause no one to assume a do-nothing attitude, but rather spur us on to do our share, utilizing every proper agency at hand for the eradication of the Great White Plague. It can, must and will be accomplished. Pasteur has said that it is in the power of man to cause all germ diseases to disappear from the face of the earth. There is no reason why tuberculosis cannot be controlled and suppressed just the same as we control and suppress other germ diseases.

In studying the development of the anti-tuberculosis work we find certain definite stages in the tuberculosis movement. The first stage we find to be the establishment by states of sanatoria for the treatment of favorable cases. These were concerned mainly with the cure of "cases." Soon after it was realized that the advanced cases were a greater menace and a greater burden to the state, and the conclusion was reached that in the proper care of these cases the safety of the public health of the community would be most largely secured.

So we have the second stage of the tuberculosis movement. This stage has been characterized by a vigorous movement for the establishment of local and county institutions for the care of advanced toxic cases. New York has made plans for the establishment of hospitals for these cases by every county, in spite of the fact that it has a considerable number of institutions scattered all over the state.

Massachusetts, although it has four large state sanatoria, has passed a law requiring the establishment of hospitals for advanced consumptives by cities of 10,000 inhabitants or over.

We are at the present time in the midst of this important stage of development of the forces in combat against tuberculosis.

The third stage of development and the one which is the connecting link in our campaign, is the movement for the establishment of dispensaries with their great possibilities of early diagnosis and their corps of nurses for home supervision of cases that have returned from sanatoria and of patients who will not go to a sanatorium. Through the tuberculosis dispensary nurses or a state-wide system of visiting tuberculosis nurses we can provide in any corner of the state, however remote, free medical supervision for every indigent consumptive and his family. In this way we can hope to reach every consumptive, and only as we accomlish this shall we get the best results in our campaign.

The efficiency of this system lies in the close relationship between the dispensary-sanatorium and hospital, so that every indigent consumptive in the state and his family cannot only receive treatment at home in the home, but sanatorium and hospital treatment as well; and what is quite as important, is followed up and kept under observation or treatment upon his discharge from the sanatorium or hospital.

Supervision of all consumptives means the expenditure of a vast amount of hard earnest work; large amounts of money; enlargement of our present institutions; establishment of new local institutions in those parts of the state where most needed for the advanced unfavorable cases; and a comprehensive scheme of home supervision.

To do all this *now* would in the end be economy. If we fail of this aim, we shall not do our

full duty in the war against the Great White Plague.

2. *The second important feature is the prevention of new cases.* We must stop manufacturing consumptives or else we shall have new and larger crops to deal with in the coming years. To this end in the first place we must isolate the foci of infection; second, we must remove those conditions which tend to foster and breed tuberculosis. We must do away with the "lung blocks"—the overcrowded unsanitary homes of the poor. We must make working conditions sanitary. We must prevent overwork. Child labor must be suppressed and woman labor restricted. We must raise the standard of living by paying reasonable wages for reasonable hours of labor.

3. *The third important factor is the education of the people in right living and in the prevention of tuberculosis.*

The people must be taught the lesson of personal hygiene,—that drunkenness is not only the curse of the home but the curse of the body as well, and a most active ally of the tubercle bacillus.

The public must be educated to seek the doctor early when suspicious symptoms present themselves. They must be made to appreciate that the tubercular member of the family, for his own sake as well as theirs, must be sent to the sanatorium or hospital.

They must be taught the need of examination of other members of the family exposed to the infection, so that, if it is found necessary, the disease may be treated in its incipiency.

They must be educated so that they will be willing to send the tubercular child away for treatment, and not as now, let unreasoning paternal love stand in the way, preferring a dead child in the home to a live one in the sanatorium.

I know of no better way to accomplish all this than by a good system of visiting nurses. The District Nursing Associations in Concord and Manchester are of great value in this particular direction.

3.

THE FORCES AT WORK AND THEIR EQUIPMENT.

1. *Laws relating to the prevention of tuberculosis in New Hampshire.*

We have our registration law, requiring the registration at the State Board of Health of every known or suspected case of tuberculosis. We have our anti-spitting laws. We have a law requiring that every death or removal of a consumptive be reported to the board of health and the premises fumigated.

2. *Institutions.*

(*a*) We have our excellent State Sanatorium at Glencliff, New Hampshire, located high in the mountains, designed primarily for the treatment of favorable cases. It has a well equipped plant and has beds for sixty patients. It has done and is doing splendid service in saving the lives of many consumptives. It plans to reject all unfavorable advanced cases, but has accepted many moderately advanced cases because there were not enough applications of incipient cases to fill it to its capacity. This is true of the majority of institutions for incipient cases. It is unfortunate that far too many consumptives are not diagnosed until they become moderately advanced. The only question for admission is not whether the case is incipient or advanced, but whether the patient offers a resonable prospect of improvement or cure. It does admit advanced cases when they present such a reasonable prospect of improvement or cure.

(b) Under the provisions of a bill passed in 1911 and 1913, which appropriated $20,000 a year for two years in 1911 and in 1913 appropriated $15,000 a year for two years, a large number of advanced cases have been cared for at the Pembroke Sanatorium and the Tuberculosis Ward at the Hillsborough County Hospital at Grasmere. About twenty-six state patients can be cared for at any one time under this appropriation. The Tuberculosis Committee of the New Hampshire Medical Society prepared two bills, making provision for advanced consumptives for presentation to this present legislature; one provided for the establishment of a state hospital sanatorium, to be located near the centers of population and designed for the treatment of advanced cases; the other asked for an appropriation of $50,000 a year for two years for the treatment of these cases.

We were advised by the powers that be that the first bill would be absolutely killed because of the poor condition of the state's finances. The second bill had many advantages and had two objects in view: First, to provide treatment for a goodly number of the state's unfavorable advanced cases; second, to stimulate the establishment of local institutions by charitable people in parts of the state where such institutions were most needed.

This latter bill has passed the House, with the amount of the appropriation asked for cut to $17,500 a year for two years.* We were told that there was no question of the need of the work or of the merits of the bill, but the state had to cut down on its appropriations.

If the whole amount asked for had been appropriated, both objects of this bill would have been secured. It is easily seen that besides only providing treatment for about thirty-two advanced cases at any one time, it will not encourage the establishment of new local hospitals for advanced cases. No one institution hoped or expected to be able to care for enough patients to use up the $50,000 a year—the idea was to secure provision for the large number of ad-

* The Senate has since increased the appropriation to $20,000 a year—the House has concurred and the bill signed by the Governor.

vanced cases in urgent need of treatment and at the same time encourage the establishment of new local institutions so that the unfavorable cases might be cared for near their homes and family. Thus the patient could be frequently seen by his family, get the necessary nursing care, and a focus of infection be removed from the home.

3. *Organizations.*

The State Board of Health, the New Hampshire Red Cross Society, the tuberculosis committee of the Concord Charity Organization Society, and other organizations, are doing considerable work in educating the public. The New Hampshire Red Cross Society and the New Hampshire Federation of Women's Clubs have contributed funds for the treatment of patients at Glencliff and Pembroke. The district nursing associations and school nurses are doing excellent work in supervising cases in the homes and providing examinations for individuals presenting suspicious symptoms. In this way, especially in Concord, a number of early cases undoubtedly due to family contagion, have been brought to light.

4.

EQUIPMENT WHICH IS LACKING.

1. *Laws.*

A valuable addition to our equipment would be the enactment of a law empowering the State Board of Health or local boards of health to remove to a sanatorium or hospital a consumptive whom they deemed dangerous to the public health, either through inability to secure proper preventive measures at home or through carelessness or indifference on the part of the patient in regard to the prevention of spread of his infection.

2. *Earlier Diagnosis.*

Of great value would be a campaign for early diagnosis throughout the state so that our State Sanatorium may receive a larger percentage of favorable cases and so save more lives to the state. As the possibility of cure or arrest of this disease depends largely upon the extent of the disease in the lungs, it is of vital importance that the consumptive be caught in the incipient stages. It is the duty of the conscientious physician to do so.

3. *We lack adequate provision for the treatment and care of the unfavorable, advanced consumptive.*

Of vital importance are adequate funds and local hospitals for the treatment of these cases. In both of these, New Hampshire is pitifully lacking. More beds for this class of cases is an imperative need. More local institutions are an absolute necessity if we hope to cope with this infection. The bill presented to this legislature had both of these objects in view.

*There should be at least 60, and preferably 100, beds in New Hampshire for advanced unfavorable cases of tuberculosis.*

We had a splendid hearing upon the bill I have spoken of before the Appropriations Committee of the House. Twenty-six prominent people of the state, among them fourteen physicians, the overseer of the poor of Manchester, the superintendent of the District Nursing Association of Concord, the city missionary of Manchester, the secretary of the State Federation of Labor, the secretary of the State Conference of Charities, and others interested in the humanitarian work of the state, testified to the great need.

The doctors responded well to a call for their aid, and, as I have said, fourteen appeared before the hearing, among them the president and secretary of the State Medical Society, the secretary of the State Board of Health, and the chairman of the Legislative Committee of the State Medical Society.

The result was that the committee was impressed with the great need of the work, and the chairman told us at that time that there was no question of the need of the work or the merits of the bill and that the committee would do all it could, but the financial resources of the state would not permit granting of the full appropriation. It is unfortunate indeed that the committee did not make larger provision for these cases.

4. *There is practically nothing being done for the tubercular children of New Hampshire.* There are no sanatorium beds for tubercular children. There are no open schools. This places a big handicap upon the medical inspectors in schools. If we wish to save the anemic, predisposed, and incipient and closed tubercular children of today from becoming the active cases of tuberculosis in the future, open air schools and home supervision are a necessity. In many instances this could be done without great expense—a room or a number of rooms with all the windows out being utilized for the purpose. There is no provision for the treatment and care of the indigent crippled tubercular children of New Hampshire.

5. *We lack a comprehensive scheme of home supervision.* In a few instances this is being done well by the district nursing associations, particularly in Concord, but much more work is necessary in this direction. This would involve a considerable amount of education and mean a good staff of visiting nurses. The state would get full value for every dollar expended. This could be done under the supervision of the State Board of Health or a State Tuberculosis Commission or some other state body. It would be perfectly feasible to cover the state with visiting nurses for the purpose of discovering and providing adequate care for practically every case of tuberculosis in the state. You will find that no matter how adequate the sanatorium and hospital provision, there are many who will not and cannot go to such institutions. Home treat-

ment is not to be recommended unless it provides the most careful home supervision, together with adequate relief and medical attendance. This, in conjunction with sanatorium and hospital treatment, would be of great value in getting every case under control. This is the ultimate aim which we must keep constantly in view.

Until every case is under control the sources of the infection are unguarded, and the disease will spread quietly, slowly, but surely.

6. *We lack a central organization to direct the tuberculosis work in New Hampshire.*

A central board or commission could direct the forces at work,—supervise sanatorium and hospital treatment, prevent overlapping, initiate and extend home supervision, stimulate the public as to the necessity of dispensaries, open-air schools, etc. Such a commission, thoroughly conversant with the various problems of the work, knowing the particular needs of the forces at work, could appear before our legislative committees, and, with the authority of a state organization, tell them the needs and ask for the necessary equipment. *It is a disgrace to New Hampshire that previous to this last legislature a few physicians, social workers, and others interested in humanity, should have had to fight for what little provision had been made for the unfortunate dying consumptive.*

Between Dr. Wise, the superintendent at Glencliff, and myself, there has always been a cordial feeling of coöperation. We have met occasionally to discuss the problems confronting us in our work, with much benefit to myself. We both feel that a central tuberculosis board would be of distinct value in making more effective the tuberculosis work in New Hampshire.

5.

SOME SUGGESTIONS FOR THE FUTURE.

1. *A Campaign for Early Diagnosis.* As the physician is the only one who can make the diagnosis we must urge upon the profession the great need of care and attention to earlier diagnosis; and at the same time the public must be instructed as to the vital importance of consulting the physician when suspicious symptoms present themselves.

I would suggest that a paper be read upon the subject of tuberculosis, preferably early diagnosis, before each and every county and local medical society. I see no reason why so vital and important a subject as tuberculosis, with its tremendous influence upon the public health, should not be freely discussed before these societies at least once a year. Certainly a paper should be read upon this subject at annual meetings of the State Medical Society.

I would suggest that all the members of a family in which a case of tuberculosis exists be examined. In this way many cases may be discovered due to family contagion. To accomplish this means tuberculosis dispensaries, particularly in the cities The establishment of such dispensaries would be of great value in discovering early cases and, of equal importance, keeping tabs on the cases returning home from the sanatoria. In some instances this work is being done by the District Nursing Associations.

2. *A Permanent Tuberculosis Committee of the New Hampshire Medical Society.* As tuberculosis is the most prevalent disease in New Hampshire and the physicians of the state must of necessity be interested in the problem, it would seem wise that a permanent tuberculosis committee of the State Medical Society be appointed to consider matters of interest in regard to tuberculosis and bring annually to the attention of the society any such matters of interest or matters of policy in the campaign against tuberculosis as may seem advisable to them. Such committee may confer with the Legislative Committee of the State Medical Society and may with them prepare any bills deemed advisable.

In this way the members of the society may be kept in touch with the various aspects of the tuberculosis problem and may add their influence and help towards their proper working out and solution.

3. *A Vigorous Campaign for Proper Provision for Care of the Advanced Case.*

As the provision made for the treatment and care of these cases is wholly inadequate to the need, a vigorous campaign for proper provision for the care of these cases is essential. This is not a question of the survival of any institution, but a question involving the safety of the public health. These cases must be provided for; for the sake of humanity, for the protection of the public health. It is a question which cannot be dodged or evaded. The advanced dying consumptive must be provided for. This must be done in a humane way, humane to himself and to his family, *i.e.* in local institutions within easy reach of his relatives and friends.

A good large state hospital for the treatment and care of unfavorable, advanced cases located near the centers of population is an absolute and vital necessity. If the state cannot do this then it should pass a large enough appropriation to care for those in urgent need of treatment, in this way providing for the consumptive, and at the same time encouraging the establishment of local institutions for his care. This latter policy is the one recommended by the National Association as being the most economical and satisfactory one for the state to pursue. Only when we have such local hospitals, where the advanced unfavorable case can be isolated, the same as our cases of scarlet fever and diphtheria, shall we control tuberculosis. *The control of tuberculosis is largely a question of control of the tuberculous.* Give the favorable case every chance for cure or arrest of his disease, and educate and isolate the unfavorable, advanced consumptive in a local hospital or sanatorium. If we tackle the problem as it should be tackled, making the

fighting forces and their equipment commensurate with the size and importance of the enemy, we shall soon secure success in our efforts. If the provision is small, the day of victory is farther off, and the fight in the present all the harder and less encouraging. We, as physicians, should exert every legitimate influence at the next legislature to obtain adequate provision for these cases.

4. *Open-Air Schools.*

Of great value in the campaign would be the establishment of open-air schools in our cities. They are a necessity—not a luxury. Some facilities of this nature are necessary in Manchester, Nashua, Concord, and without doubt, some of the other larger cities.

5. *Provision for Crippled Tubercular Children.*

It is a disgrace to New Hampshire that there is no provision in the state for the treatment of crippled tubercular children. There should be such provision, and it could be gotten if the New Hampshire Medical Society and the people of New Hampshire made a vigorous campaign to secure it.

6. *Home Supervision.*

A comprehensive plan of home supervision, particularly in those cases unwilling to go to a sanatorium or hospital, would be a great help in the campaign.

7. *A Central Tuberculosis Commission or some state body, to direct the forces at work, carry out and extend home supervision, etc.*, is a necessity and we should make a vigorous effort to secure it.

I am aware of the fact that there are many problems which must be worked out in our campaign. The coming years may show that our present methods are crude and incomplete, but I believe we are working along the right lines. The attainment of the full aim in our campaign, *i.e.* the control and ultimate suppression of tuberculosis, means years of hard, persistent and perhaps, at the time, unappreciated work. It is apparent that the carrying out of these suggestions, if deemed feasible by the society and backed by the people, means a great expenditure of human effort and thought, as well as the outlay of large sums of public money.

However, it will be worth it all if we can in time stamp out this plague of all plagues. Human life is the most precious possession of all, and in the conservation of it dollars and cents must not be considered.

The time has gone by when we can place the blame on the Almighty for carrying off 200,000 of the people of the United States every year with consumption in the very prime of life. The Lord intended every one to live his allotted three score and ten. The Almighty sends tuberculosis to no man. It is man that passes it on to man. It is our duty and it is within our power to stamp out this disease—destroy this destroyer of the home, health, and happiness.

If the great danger and need were persistently and forcibly brought home to our people and our legislators I cannot but believe that the necessary equipment would be given. New Hampshire is not a rich state, but it can do its proportionate share and is willing to if its people and legislators can be convinced that we, as physicians, are in earnest in our campaign against the Great White Plague.

## Original Articles.

### THE PRACTICAL TREATMENT OF INEBRIETY IN A STATE INSTITUTION.*

BY IRWIN H. NEFF, M.D., NORFOLK, MASS.,

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PREAMBLE.

THE futility of fine and prison sentence for habitual drunkenness is now generally recognized; the public, realizing the economic loss to the state from such measures, is becoming more insistent in the demand for the inauguration of some plan which will satisfactorily care for the increasing number of cases of drunkenness which are constantly appearing in our courts, or which voluntarily solicit treatment.

Any plan proposed for the care of such cases should recognize the characteristics and personality of the inebriate and consequently the need of distinctive care for such individuals. The modern treatment of inebriety demands the initiation of a widespread policy, a policy which must be sufficiently elastic to permit of its universal adoption.

The inebriate, dependent on the degree and intensity of the condition, demands a specialized treatment, which may be tentatively divided into two methods, namely, remedial and custodial. The employment of the first method demands minimum institution treatment and maximum out-patient care. The enactment of a plan for custodial care requires more prolonged institutional detention. Prior to the selection of the treatment for these two distinctive types, an accurate differentiation of the cases must be made. This diagnosis or individualization should be relegated to those who have specialized in the work.

Contrary to the general opinion, a well equipped hospital for the inebriate is so built and regulated that adequate provision is made for the care of the varied types. The requisites of such a hospital are now well recognized. The state care, which requires for its success a well defined plan, must include, first, a parent institution; second, a well organized out-patient department which must allow for extension as conditions demand; third, detention hospitals

* Read at the National Conference of Charities and Corrections, Baltimore, Maryland, May 14, 1915.

in metropolitan centers, which will care for cases of delirium tremens, alcoholic psychoses, and those suffering from acute alcoholic diseases. The success of state care depends on the co-operation of these interests to their fullest extent.

Much of the ill success of institutional treatment for habitual drunkenness is due to failure to recognize that the inebriate is a distinctive individual and that in order appropriately to care for him it is essential that an institution be built for him with specialized features.

The treatment and care of the habitual drunkard, as above outlined, can be adequately met by the state, which, by assuming such control, is providing a charity as clearly a duty to the community as caring for the insane, epileptic and feeble-minded. Certainly the benefits resulting from such care prove its economic importance.

Any state inaugurating a plan for the care of the habitual drunkard should realize that the prevention and cure of drunkenness can come only by education. An institution established for such a purpose should be considered as a general educational center for the education of the public concerning the evils of alcoholism.

### INTRODUCTORY.

During the past five years two commissions have been appointed in the Commonwealth of Massachusetts to investigate the subject of drunkenness, and the best means of correcting and controlling that evil. The economic loss to the state on account of drunkenness was the appealing argument for the creation of these commissions, an argument which could not with justice to the citizens of the state be disregarded. The reports of the respective commissions called attention to the uselessness of sentencing habitual drunkards to penal institutions, declared this custom wrong in principle and recommended its abandonment in most instances as soon as other suitable provisions could be made for the care and treatment of confirmed drunkards. Although the subject matter of the reports is largely descriptive of existing conditions in Massachusetts, it is believed that conditions analogous must exist in other states. It is not unreasonable to suppose that the plan for caring for the habitual drunkard or inebriate, sanctioned by Massachusetts, might prove satisfactory if adopted by other states. The policy, which will be described, is sufficiently elastic so that its inauguration by any state would be feasible; the real economic importance of the plan is certainly indisputable. Thus far its benefits to humanity have proved its worth.

### THE INEBRIATE.

A recognition of the need of discriminative care of the inebriate necessarily implies the acceptance of the modern conception of the condition. The failure of the public to recognize the true nature of inebriety and the procrastination of those who have had it in their power to inaugurate and direct reforms or remedial movements have heretofore proved serious handicaps to the carrying out of any practical plan which could satisfactorily individualize and treat these dependents. Such ignorance or heedlessness has in great part been responsible for the many irregular methods which have been advanced and heralded as cures for drunkenness and allied conditions; therefore, as an essential foreword to the subject of my paper, I will define inebriety. Before we can successfully cope with a disease it is necessary that we know the nature of the malady; a parallelism can be found in inebriety. Unless we can appreciate its characteristics and peculiarities we cannot hope to combat it. For a proper understanding, the study of a condition or a disease must necessarily begin by studying the environment and the individual responsible for the state or disturbance. The study of inebriety is no exception to this rule. A knowledge of the personality of the inebriate must be the foundation stone for the treatment or for any suggestion made to the public for the control of drunkenness. It has always seemed to me that much of the misunderstanding about inebriety may be traced to our misconception of the word "inebriate." An inebriate, medically speaking, is an habitual drinker or an habitual user of drugs or some other form of intoxicants. All cases of intoxication are not cases of inebriety, but all confirmed or habitual drunkards are properly classed as inebriates. Inebriety has been called a disease. This has been vigorously opposed by those who would have us consider it a habit requiring only correctional measures for its control. Adherents to the "habit" theory have contended that any existing diseased condition, whether mental or physical, is due to wilful indulgence.

Again it is maintained by some of those who are willing to consider inebriety tentatively as a disease that a general acceptance of this understanding would severely operate against any plan proposed for the suppression of drunkenness, as it would eventually lead to the public belief that the inebriate is irresponsible. I have also found that many persons have preconceived ideas about the habit of drunkenness, their opinion being formed either from the observation of a single case or from conclusions arrived at by a wrong interpretation of the types. It seems unnecessary to say that the study of drunkenness is to be approached with a realization that such a study has apparently many complex features, the complexity disappearing when we appreciate the importance of the personal equation. Although all classifications of drunkenness are indefinite and have overlapping features, it is possible for an experienced person to make a workable classification which can be of material aid to him in determining the value which might come of appropriate treatment. I feel quite sure that considerable time and energy

are in many cases misspent in expecting brilliant results from treatment of cases where the nature of the inebriate condition precluded recovery, or indeed any material improvement. The study of drunkenness is a medical-social study and for the successful application of any method advanced for its control it is essential that we appreciate that, although the diagnosis and treatment depend on the adjustment of the medical and social findings, the line of demarkation between these two studies is closely defined. Our studies of the personality or make-up of the inebriate have been for the most part a verification of the conclusions so clearly and tersely given by R. W. Branthwaite in his Report of the Inspector under the Inebriates Acts for the year 1912. It must be remembered that these conclusions do not refer to accidental or occasional drunkenness which is wilful or premeditated, and not related to inebriate alcoholism. These states of intoxication for our present purposes may be entirely disregarded. Branthwaite's description of the inebriate, which I quote *verbatim*, is as follows:—

"An inebriate is a man who may or may not desire to live soberly, but in any case cannot, unless or until some change takes place in his physical or mental state. The more we see of habitual drunkards the more we are convinced that the real condition to be studied, the trouble we have to fight, and the source of all the mischief, is a psycho-neurotic peculiarity of some sort; an inherent defect in mechanism, generally congenital, sometimes more or less acquired. Alcohol, far from being the chief cause of inebriety, is merely the medium which brings into prominence certain defects that might have remained hidden but for its exposing or developing influence."

The writer, for one, does not believe that any single inebriate, of all the many thousands admitted to retreats and reformatories, has voluntarily and of intention brought himself to that state. On the contrary he is convinced that all who possess the power to appreciate the seriousness of their condition have urgently and honestly desired to live a sober life, and have fought to this end and failed in a struggle against forces, the strength of which a normal man is incapable of realizing. Sufficient credit has never been given to the honesty of an inebriate's fight against inclination, or to the inherent weakness of his power to resist impulse that renders his struggle for victory unsuccessful. If this could be brought home to many people, who now have nothing but blame and abuse for the drunkard, there would be more sympathy shown—and sympathy would breed help. Who knows how many of the inebriates of today might have been saved had they dared to acknowledge their state during the early days of its development, and ask for help, without fear of penalty or ostracism.

The inebriate, then, is the subject of a peculiarity, the distinctive characteristic of which is his inability to take alcohol in moderation, despite the most strenuous efforts of which he is capable. It is often possible for him to abstain from alcohol altogether, but rarely, if ever, possible for him to take it without becoming drunken. He is the victim of a psycho-neurotic fault that implies a defective power of resistance to the action of alcohol or drugs, in exactly the same sense as tubercular tendency implies impaired resistance to the specific infection of that disease. The peculiarity or fault is an extremely potent one, calling for recognition as the true inebriate state, of which drunkenness, disorder, and erratic behavior generally, are merely outward and visible signs.

Although it is clear that a marked correlation exists between the recognized forms of mental defect or disease on the one hand and habitual drunkenness on the other, the association is not definite enough to justify the commonly heard statement that all inebriates are more or less insane or mentally defective. When inebriates of all social grades are classed together it will be found that the majority are neither the one nor the other; indeed, many typical inebriates are extremely capable individuals during sober intervals. Notwithstanding this, even the most mentally sound amongst them are not normal persons; the evidences of peculiarity are too definite to be ignored, although its character is difficult to define, and its location obscure.

Concerning the mental characteristics and make-up of an inebriate, I can safely say that when analyzed many cases of habitual drunkenness show mental and physical defects which may, or may not, have antedated the drunkenness, a fact which lends additional support to the contention that the punitive measures which are habitually or quite generally used toward these individuals are unjust and should be discontinued. It is true that this type of case might consistently be considered hopeless or irresponsible. This is an added reason for condemning the sentencing of such individuals, a method which is irreconcilable with our findings. Statistical knowledge bearing on the subject is overwhelmingly supportive of the conclusion that a considerable number of confirmed or habitual drunkards are mentally defective, the defectivity being manifested in various ways, ranging from mild emotional disturbance and judgment perversion to well defined psychoses. While these mental defects have been quite generally found in the more confirmed or advanced cases, some recent investigations and analyses of incipient inebriates have shown certain functional nervous disturbances which might have antedated the drunkenness. Laboratory methods which are now being used for the study of these cases will doubtless in time give us valuable results; then, and not until then, can we definitely assert that actual mental defect in the drunkard existed prior to the development of the confirmed drunkenness. The results along these lines have been more than suggestive, but not entirely conclusive.

Recognizing that inebriety is a well defined condition, we can define the inebriate state as follows:—

(*a*) Inebriety is an expression of nervous weakness, the nervous weakness being inherited,—a psycho-neurotic fault; founded on this weakness, manifestly a defect, is a habit we call drunkenness.

(*b*) The inebriate is therefore the sum total of his personality or make-up, and the symptoms which we call drunkenness.

(*c*) Inebriety can be considered technically as a form of a disease in the sense above described, a condition which implies a graded responsibility, the degree of responsibility being determined after a consideration of the individual case.

### THE INSTITUTION.

There is a popular belief that institutional care is all sufficient for those unfortunates who are mentally or physically diseased; especially has institutional care been recommended for those persons who are resistive to the ordinary methods usually employed for the care and treatment of chronic disease. Inebriety has been no exception to this rule; indeed, if one would review the history of the management of the drunkard he would doubtless be surprised to find that an appreciation of the chronicity of the condition has existed from the earliest times, and that this alone has been responsible for the demand for the segregation or imprisonment of the drunkard. This method of management, with little or no variation, has been handed down from generation to generation, and as no practical substitute has been offered, the time-honored system, punishment, or coercion, in some form, for the drunkard has been continued. I do not deny that many honest attempts, both preventive and remedial, have been advanced to solve the problem. These attempts, due largely to the failure to recognize that voluntary or coöperative methods are superior to enforced or punitive measures, have met with little success. We must remember that today we are better prepared to meet the problem. The knowledge that the inebriate is an entity and our understanding of the benefits from individual treatment, have given us valuable weapons to fight with, weapons which, if considerately used, are of considerable range and value.

Any plan which is put into practice for the treatment or amelioration of drunkenness should be controlled and administered by the state. The magnitude of the problem and the closely interwoven economic questions argue against local or municipal control.

The successful care and treatment of inebriety demands the inauguration of a definite policy which includes both institutional and non-institutional departments, both of these departments being inter-related. The institution, or fountain head, of the system demands first consideration. On the threshold of our contemplated plan for the practical care of the habitual drunkard, it appeared to us that our work should be directed: first, to the extension of individual treatment of cases; second, to the securing of remunerative employment for cases which were under our care and treatment; third, to the compiling of accurate histories of those who had been discharged from the hospital; fourth, the establishment of after-care, which department should be an integral part of the hospital.

It is, therefore, at once apparent that something more than the mere housing of the individual is needed. An institution for the purpose must be adaptable; it must have distinctive qualities and be especially built and equipped for the class of persons for which it is intended; in other words, certain conditions are required, departures from the character of an ordinary institution: and lastly, the institution should be so constructed that it can adequately treat the varied types of inebriety committed to its care. The requisites of such an institution are:—

(*a*) A sufficient area of land to provide for agricultural development and for outside employment for the patients.

(*b*) Sufficient plant for industrial training.

(*c*) A tract of land of sufficient continuity so that there will be an opportunity for the segregation of the diverse cases.

(*d*) Adequate provision for both male and female inebriates.

Acting on these recommendations, a large tract of land was purchased in Massachusetts. The area selected has natural advantages; in other words, the land is largely undeveloped, thus allowing for considerable work for the inmates and affording an opportunity for affiliation and coöperation with the forestry, agricultural and other State Commissions. This cooperation in our estimation is an essential part of our educational scheme and is also of sufficient economic importance so that the economies have been helpful in building and equipping the plant. The acreage, over one thousand acres, is sufficiently large so that the requisites before mentioned have been met. The cottage or colony is the pivot centre of our scheme. Three different colonies are considered. First, a hospital colony for men, which will take care of the hopeful cases; second, a detention farm colony which will provide for the more chronic and resistive type of patients; third, a hospital for women. Briefly expressed, the colony groups would care for the following types of patients: The cottages for men would receive:—

1. Patients who come voluntarily or who are committed by the courts.
2. Young habitual drunkards placed on probation by the courts on condition that they spend a specified period at the hospital.
3. Suitable cases transferred on parole from the detention colony.

4. Non-criminal habitual drunkards committed by the criminal courts or received voluntarily as a condition of probation.

The cottages for women would receive:—

1. Patients who come voluntarily or who are committed upon application.

2. Cases placed on probation by the courts on condition that they spend a specified period at the hospital.

The cottages, which are units, are built in groups distributed over the large tract of land. A centralization of the administrative and service group is necessary. For purposes of economy these buildings, with the ordinary service buildings, form a central group. I would at this point emphasize that the essential part of our housing scheme is the cottage. These cottages must be so situated and constructed that they will readily lend themselves to the needs of the patient groups.

OUT-PATIENT DEPARTMENT.

At an early period in our institution career we recognized that the mere training of a patient at the hospital was in itself an inadequate provision, when a discharged patient was compelled immediately to return to adverse conditions. Accordingly, five years ago an out-patient department and clinic were developed. Modest in its beginnings, it has rapidly grown in extent and its usefulness has progressively increased. The Norfolk State Hospital has now established in metropolitan centers two such departments which are serving definite areas of the state. The department, which is in charge of a physician who is assisted by non-medical workers, is a fixed part of the hospital. An active vocational bureau is maintained, visits are made to the homes of discharged patients, aid is supplied to dependent families and every effort is made to reinstate the patient in his business interests and domestic relations, for unfortunately it is often the case that the victim of habitual drunkenness has lost not only his own self-respect, but has forfeited the respect of others. At this point a strong helping hand is needed. This was the fundamental reason for the beginning of our out-patient work. Another feature of the department is the medical and social clinical work. An increasing number of persons apply for advice, and it is quite often feasible to treat such persons outside of the institution, reserving the hospital or custodial treatment until conditions demand it. Furthermore, the out-patient department serves as a central educational focus, acquainting the public with the aims and purposes of the hospital. This department has rendered valuable aid in carrying out the educational and medico-social work begun at the hospital. Every patient at the time of his discharge is impresed with the idea of coöperating with the out-patient department. Some of these discharged men report to the hospital, others at the office of the out-patient physician, while others are visited at intervals by the physician of the out-patient department. As before stated, particular attention is paid to the social readjustment of the patient, and every effort is made to secure for him congenial work and an environment suitable to his condition. During the past year 3286 visits have been made to the homes and workshops of discharged patients, and over one hundred permanent positions have been obtained for them. In order to emphasize the importance of the work of this department the following figures, covering one year's work, are given:—

| | |
|---|---|
| Visits to office | 471 |
| Visits to hospital | 105 |
| Visits to homes of patients who are at the hospital | 516 |
| Visits to homes of patients who have been discharged from the hospital | 2770 |
| Visits to employers relative to work for discharged patients | 130 |
| Situations obtained for discharged patients | 97 |
| Men who are working and abstinent | 1188 |
| Men who are abstinent, but not working | 227 |
| Men who are drinking some, but working | 295 |
| Men who are drinking and not working | 472 |
| Men who have not been located | 298 |
| No answer to inquiries | 481 |
| Men applying at office, recommended for admission to hospital | 470 |
| Men applying at office, refused admission to hospital | 367 |
| Patients reporting at office, abstinent and working | 360 |
| Men drinking whose return was advised | 137 |
| Men drinking whose return was refused | 184 |
| Inquiries | 473 |
| Consultation with outside parties | 76 |
| Letters sent out relative to discharged patients | 891 |

Another branch of the parent institution which should be considered is the establishment of hospital clinics or detention hospitals. It is not necessary that these hospitals should be especially built for the purpose, as arrangements can frequently be made to coöperate with general hospitals which are already established. In such branch hospitals should be treated cases of delirium tremens or cases of acute alcoholism, which either voluntarily present themselves for treatment or are brought in as emergency cases.

The plan as developed by Massachusetts, and which is now in part in active operation, can be described as follows: First, a state hospital for the treatment of alcoholic and drug habitués, developed on the colony plan, with a sufficiently ample and flexible equipment so that appropriate care and treatment can be given to the different types of inebriety; second, an out-patient department and clinic with broad and well-defined duties; third, detention hospitals and hospital clinics having specialized features for the care and treatment of cases of acute alcoholism.

A substantial start has been made. The Massachusetts central state institution has been in part built, out-patient departments have been established and the coöperation of the hospitals is assured. To the trustees and to those of us who are interested in the proposition the real incentive for the contribution of our work is our conviction that the public believe in the integrity and stability of the system as planned six years ago.

I feel that my paper would be incomplete if I failed to describe our method of treatment. Believing as we do, that the inebriate condition has for its basis a distorted mentalization, our efforts are directed in an endeavor to interest the patient in his individual case and, having accomplished this, to make the interest self-sustaining. Our experience has shown us that the success of hospital treatment depends upon:—

(*a*) The ability of the patient to coöperate in treatment.

(*b*) Our ability to introduce into the patient's mentality some tangible substitute for the desire for artificial stimulation.

Such a result is brought about by attention to the patient's mental and physical hygiene, and necessarily depends on the educational measures inaugurated at the hospital and continued by the patient after he leaves the institution. The treatment must necessarily be considered as in the realm of physiologic therapeutics, which is supplemented by the simplest form of suggestion. The suggestion is really an auto-suggestion, the result of a correlation of impressions which the patient receives from his association with the physicians and from his relation to the hospital environment. The physician is concerned in an analysis of the individual case, which is made possible by encouraging the patient to coöperate in his own recovery, by strengthening his self control.

I have reserved for my concluding paragraphs an account of our work extending over a period of five years. Considering the result of hospital treatment, it must be borne in mind that the total number of discharges is considered. No attempt has been made to differentiate cases. Each case has been considered individually, the following conditions determining the final report of the result of treatment.

1. The type of inebriety, divisible for practical purposes into three classes:—

(*a*) The regular drinker,—one accustomed to the use of stimulants daily.

(*b*) The irregular drinker,—one accustomed to the use of stimulants at short intervals.

(*c*) The periodical drinker,—one accustomed to drink at periodic intervals, periods of months or years elapsing between the periods of insobriety.

Thus a man whose period of drinking occurs at intervals of six months may be admitted to the hospital in a state of acute intoxication, recuperate rapidly and leave the hospital in six or eight weeks. Under usual conditions this man would not relapse for four or five months, therefore the report of the result of hospital treatment should be suspended for a considerable period; at least, a final report on the case should not be made until one or more of the man's episodical attacks of drinking have been successfully combated. On the other hand, if a man who had been a regular or irregular drinker before his hospital treatment, is abstinent for a considerable period after his discharge from the hospital (we have tentatively placed this period at six months), we are justified in considering the man as improved.

2. The conduct and attitude of the patient after his discharge from the hospital. Under this caption we consider the ability of the man to earn his livelihood, and his success in readjusting himself to society.

3. The willingness of the patient to coöperate with hospital authorities after his discharge from the hospital.

Guided by these rules, we have carefully investigated the present condition of all patients discharged and have made careful comparative tests.

The following figures, therefore, have been compiled after continual and prolonged observation of discharged patients; these do not include patients who have not been discharged for a maximum period of six months. During the past five years 1174 patients have been investigated as above described. Out of this 1174, approximately 753, or 64%, are today working and either totally abstinent or drinking so little as not to interfere with their work. Practically all of these men had, before coming to the hospital, dropped below the class of the self-supporting.

The successful treatment of the inebriate in a state institution may, therefore, be said to be dependent, first, on an appreciation of the true nature of the condition; second, on a realization that the inebriate, dependent on the degree and intensity of the condition, demands specialized treatment; third, the necessity for active and continued coöperation with those interests which are genuinely concerned in the problem; fourth, diligent and consistent work and an adherence to the principle established by a definite method of control; and lastly, the education of the public to a proper realization of the status of the institution to the community.

## AN ELECTRO-MOTOR BONE OUTFIT AND TECHNIC OF ITS USAGE.

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UNTIL 1911, when the author first began to do his bone grafting operation for Pott's disease,

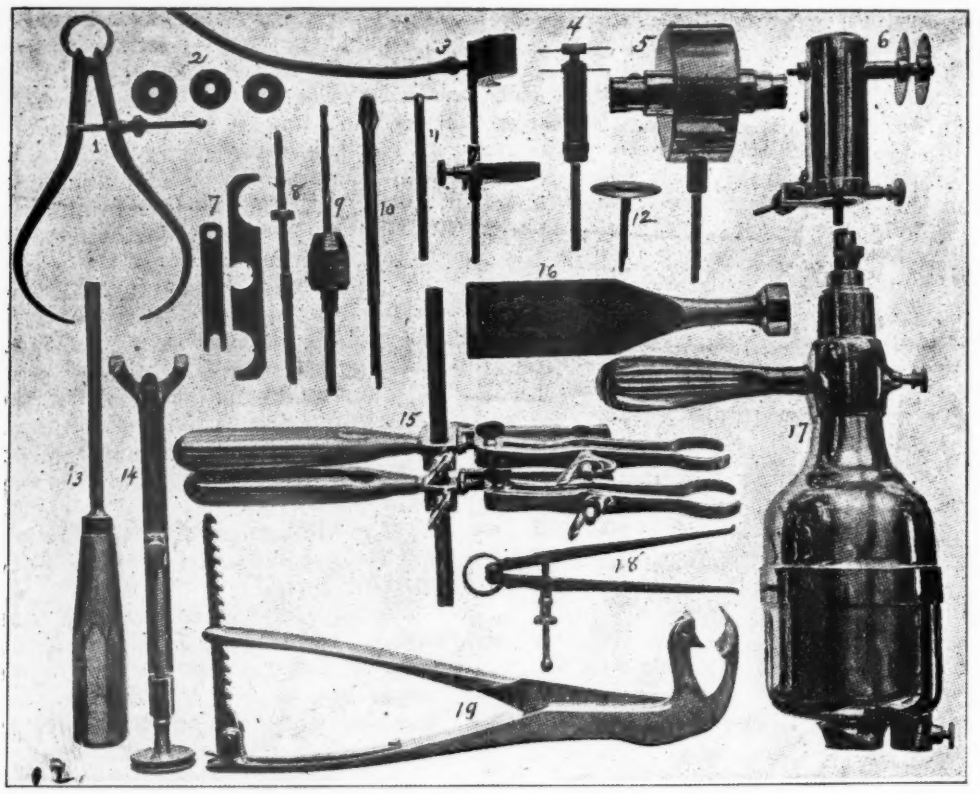

FIG. 1.—Author's armamentarium for bone work.

1. Calipers. 2. Doyen washers or guards for motor saw. 3. Spray and guard for saw. 4. Twin saw. 5. Dowelling instrument or lathe with cutters of two sizes in place. 6. Right angle twin saw. 7. Wrenches for twin saw and drill chuck. 8. Drill with guard to prevent it penetrating too deeply. 9. Drill chuck and small drill in place. 10. Burr for drilling fractured neck of femur for peg graft. 11. Small circular saw. 12. Large saw. 13. Carver's gouge. 14. Lowman fracture clamp. 15. Berg fracture clamp. 16. Wide osteotome for splitting spinous processes for the insertion of bone graft for Pott's disease. 17. Surgical electric motor. 18. Compasses. 19. Lambotte fracture clamp, large and small.

the bone transplant had been so infrequently used as a surgical agent that no special technic had been developed for its removal. The electric motor circular saw (Doyen) had been used for skull work, driven by either a flexible shaft from a motor on a nearby stand, or by the Hartley-Kenyon apparatus, where the cutting tool is attached directly to the motor shaft,— and, so far as the author is aware, it had not been used in any systematic way for the removal or the modelling of bone transplants.

The author began his spinal work by removing the graft from the tibia with chisel and mallet, and later others made use of the Gigli saw. It was soon found that these methods were not only slow and inaccurate, but that they presented the dangers of bruising, cracking, or fracturing the graft or tibia, or both. This is especially true in adult patients, on account of the brittleness and thickness of the cortex. In the child, on account of the small diameter of the bone, the danger of fracture is evident, although the graft is obtained by means of hand tools with much less difficulty and much less likelihood of fracturing it.

Also, in obtaining grafts 8 in. or more in length, it was found that the hand-tool methods were crude, requiring too much time, tiring the surgeon, and unnecessarily shocking the patient. In removing the graft with the chisel and mallet, the graft must many times be handled and shaped after its removal, whereas with the circular motor-driven saw a pattern marked in the periosteum with a scalpel can be followed accurately and the graft shaped *in situ* during its removal. The graft pattern is usually obtained by bending a flexible probe or leaden bar into the prepared graft-bed, whose shape is transferred to the tibial surface from which the transplant is to be removed.

In modelling the graft into dowels, wedges, inlays, and in making use of the different well-known mechanical devices, such as tongue and groove joint, dove-tail joints, mortices, etc., the motor outfit is still more indispensable. An accurate cabinet-maker-fit may mean success in many instances where an ordinary crude coaptation would mean failure. Especially is this true in ununited fractures.

The skepticism as to the value of the graft, plus the difficulty in obtaining and moulding it, has undoubtedly delayed the earlier development of the use of this most valuable surgical agent. It is difficult to give an adequate reason why in the rapid advance of surgery the work of osteoplasty has, until very recently, stood for so long a time practically at a standstill, especially in view of the fact that Ollier, in 1858, from ex-

tensive animal experiments and surgical work,—although working in the pre-antiseptic era,—furnished abundant evidence that the autoplastic bone graft survived and lived when consisting of cortex, periosteum, and endosteum, and implanted into a bony defect where it had function to perform.

As in many other fields of endeavor, electric power has been the chief means of placing this valuable agent at the disposal of the surgeon. In recent years the generalization of the use of electricity for lighting, heating, and power purposes in most hospitals, private dwellings, etc., has also been a potent influence, and has enabled the surgeon always to be in reach of the necessary power for operating his motor outfit—whether he is operating in the city, suburban hospital, or private dwelling. The electric automobile or storage battery can also be made to furnish a movable source of supply, which can be utilized at any time, or place.

FIG. 2.—The manner of holding the motor saw. The connecting wire to the electric wall fixture. The foot switch control. The sterilizable connecting wire to the motor. The sterilized rubber tube connecting the tank of normal saline solution and the spray attachment above the saw. The author's broad thin osteotome for splitting the spinous processes and the calipers for determining the length of the graft are on instrument table.

The ideal surgical electro-motor outfit should measure up to the following requirements:—

1. It should permit of the thorough sterilization of every part which comes in contact with the surgeon or the field of operation, including the electric cable for transmitting the power.

2. It should permit of ready application to all types of osteoplasty, whether situated superficially or in a deep wound; whether the work to be done is the procuring of the graft, the preparation of its bed, the drilling of holes, the removal of bone for the correction of deformity or disease, or to allow the proper approximation and alignment of bone fragments in cases of fracture.

3. It should permit accurate control and guidance of the motor cutting tool in all wounds and at all angles.

4. It should permit easy and convenient control of the electric current.

5. It should be light in weight, small in bulk, and permit of easy transportation.

6. The motor should be universal and adapted to all types of electric current.

7. The motor instruments,—saws of different types, drills, dowel shapers, etc.,—should be held in place in the motor by an automatic catch favoring their speedy interchange.

8. The motor-cutting tools should be constructed similarly to those long-used by the artisan for working hard materials, and should be of sufficient variety to meet every requirement of bone carpentry. The twin saw for inlay work should be so constructed that it can be readily adjusted,—to the fraction of a millimetre,—by the gloved hands of the surgeon at the operating table. The dowel cutters, with drills of corresponding diameters, should vary in size sufficiently to meet all requirements.

9. The motor should furnish enough power to drive rapidly a saw or large drill through the thickest human cortex without tendency to stall.

The author's outfit, described in this chapter, has been carefully devised and perfected with the coöperation of the Kny-Scheerer Company, to fulfil all of the above-mentioned requirements. The motor tool is attached directly to the motor shaft; the motor is covered by an adjustable sterilizable shell, enabling the surgeon to hold the motor in his hands while the tool is cutting: the weight of the outfit has been found to be an advantage rather than a detriment in its application, and it is believed that it completely fulfils every demand.

### DESCRIPTION OF OUTFIT.

The author's electric operating bone set consists of a small universal motor, *i.e.* one which will operate without readjustment on all types of electric currents, such as direct, alternating, and of varying cycles. If it is to be used on a 220 volt current, a 100 c.p. 220 volt lamp should be placed in series with motor. Electrical engineers have found it impossible to construct a light motor which will resist deterioration from repeated boiling of the motor itself, or any other safe type of sterilization. Both the insulating material and the carbon brushes are liable to disintegration from repeated subjection to heat. Therefore, the Hartley-Kenyon method of removable, sterilizable shells has been adopted, as it seemed by all means the most desirable.

The apparatus consists of a small portable motor with a sterilizable shell which is divided into two parts, so that it can be removed for boiling. A guide handle, which also can be boiled, is adjusted on and at right angles to the small end of the motor over the shell.

A foot switch is supplied to make and break the electric circuit. A long electro-conducting cord is provided to transmit the current from the source of supply. In one end of the cable is a fitting, to be inserted into the electric supply, and on the other end is a connection for the foot switch. Midway between the two terminals, a connecting block is mounted, into which is inserted the connecting cord leading to the operating motor. This connecting cord has fitted onto one end of it a metal tube and connection for the motor, and is the only portion of the electric cable to be boiled.

The foot switch can be used with either side upward. If the corrugated rubber side is upward, the connection is made by pushing down with the foot. If the other side is used upward, the foot should be placed over the entire switch, and by depressing, or allowing the aluminum lever to rise by moving the heel up and down, the current is turned on or off. An important feature of the foot switch is that it contains a speed regulator, so that the more gently the surgeon presses the pedal the slower the tool turns. This is especially a great advantage in starting to drill hard bone. When the pedal is completely depressed the motor is at full speed.

### CUTTING INSTRUMENTS

The *single* saw,—about 1¼ inches in diameter,—with Doyen graduated washers or guards, is used more than any other of the cutting tools. These saws are of the best steel and are very thin, and are held on the shaft by means of nuts which allow the saw blades to be changed when they become dulled.

The *twin saw* is so constructed that it can be adjusted to any desired width, even to the fraction of a millimetre. It consists of 2 single saws, which can be used singly or together. Each saw is mounted on a separate shaft, one of which is hollow, so that the other shaft can be inserted into it and so bring the saws at any distance apart that may be desired, according to the size of the bone being operated upon and the width of the graft or gutter to be formed.

In determining the size of the inlay or the gutter, the saw teeth are placed on the bone in the manner of a compass or calipers in order to determine the width of the inlay or gutter, and, with the saws undisturbed, the shaft of the proximal saw is prevented from turning by placing the accompanying wrench or a heavy clamp on the flat-sided end of the shaft, while the operator locks the saws together by turning the saw on this shaft away from him by protecting his gloved right hand with a piece of gauze over the saw teeth.

The *dowel instrument* or *lathe* is fastened into the motor by the automatic catch, precisely as are the other cutting tools. Its speed of rotation is reduced about 10 times by steel gears.

The size of the bone graft dowel or nail is regulated by the size of the cutter, which is adjusted in the lathe. The largest cutter is for turning out a bone graft spike for a fracture of the neck of the femur. The smallest one is for making pegs to hold inlay grafts in place. The medium-sized cutter is for making graft nails for pinning the scaphoid to the head of the astragalus in an arthrodesis for advanced flat-foot, or other condition.

The dowel-shaper is used by first inserting it into the motor, and then placing the apparatus parallel with and on the edge of the instrument table. While the assistant steadies the motor and lathe by gently pressing the same on the table, the operator, holding with a strong clamp the strip of bone to be shaped, pushes it into the dowel cutter. When withdrawn, it is a perfectly round dowel, and is ready to be driven into the drill hole made by a drill of a size corresponding to the dowel-cutter used. The strip of bone is obtained by means of the single or the twin saw.

The *small saw* is used for cutting the ends of the inlay graft or the strip of bone which is being removed to produce a gutter. On account of its small diameter (¾ in.) the saw does not encroach into the gutter walls while it is cutting across the inlay.

The *guard* with *spray* is an important attachment. It is connected by a sterile rubber tube with a douche bag suspended over the operating table, and maintains a constant spray of saline solution on the saw, preventing friction, heat, and flying of the solution.

The *twist drills* are of the type used by the machinist for drilling metal.

### STERILIZATION.

The parts to be sterilized are first removed from the motor by releasing the plunger on the end of the electric cable, so as to allow it to come out. This part of the electric cable, from the motor to the black rubber union on the contacting cord, is boiled. The handle and shells are removed and, together with the cutting tools, sterilized by boiling. The part into which the cutting instruments are inserted is removed from the motor, with the long part of the sterilized shell. This is the part which contains the automatic catch. A little sterile vaseline is placed in the motor shaft opening, and the motor is laid aside until the sterilizable parts are ready to be readjusted.

After sterilization, the operator picks up the long part of the shell with his gloved hand and places it on the corresponding end of the motor, which the nurse holds with the small end up. The nurse holds the large end of the motor in the palm of her hand while the surgeon fastens the shell to the other end by turning the shell to-

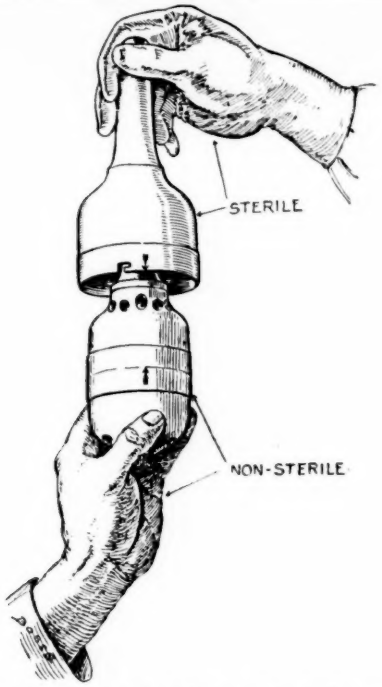


FIG. 3.—Method of putting author's motor outfit together. The sterile shell is turned to the left until it can be turned no further and the arrow on the shell comes in line with the arrow on the motor. The surgeon then has control of the motor and turns it over (see Fig. 4).

ward the right as far as it will go, or until the dart on the shell comes opposite the dart on the motor. The operator can then manage the motor alone by grasping the sterile half shell, which is firmly secured to the motor. The second half of the shell is placed over the other end of the motor and is locked in place to the first half shell by a bayonet fitting. The guide handle is placed over the neck of the motor and securely

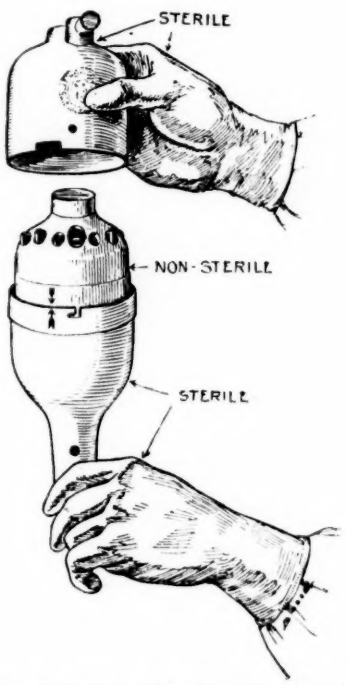


FIG. 4.—While the surgeon holds the motor by the sterile shell already attached, he locks the other half shell in place.

fastened by the set screw. The connecting plunger on the side of the electric cable is then inserted through the sleeve on the shell into the motor. This portion of the electric cable, with its metal tube and block connectors, is especially constructed to withstand sterilization by boiling. The corresponding connector is next inserted into the black connecting block in the central portion of the cable leading from the socket of electric supply to the foot switch which the nurse has previously connected and arranged with the foot switch in a convenient position for the surgeon's controlling foot while he is operating. The motor is then ready for use. The saws or the cutting tools are inserted by turning them over a little to the right or the left, while the knurled ring on the end of the shaft is pressed in by the operator's thumb, or until the spring engages the slot on the side of the shaft of the instrument. The cutting tool is unlocked by pressing the knurled ring on the end of the shaft at the same time that the instrument is withdrawn. The action of the motor is controlled by the foot switch which makes and breaks the electric circuit, and the surgeon thus has the uninterrupted use of both hands and the most precise control of the cutting instruments.

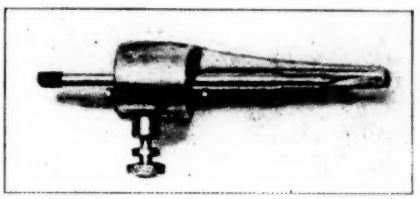

FIG. 5.—Illustration of Martel's attachment to author's electrical surgical outfit for laminectomy and skull work. The tool is used to cut away the laminae and the blunt shoe at the end prevents any injury to the dura or cord. The operation is much hastened thereby. A skull flap is produced and turned up in a similar way.

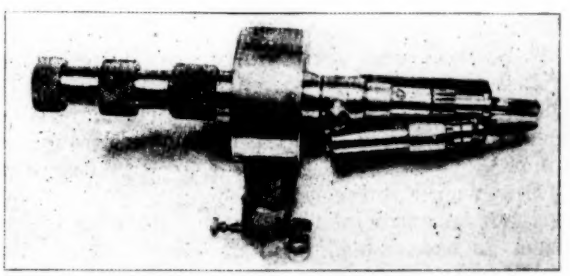

FIG. 6.—Martel's attachment to author's electrical surgical outfit for skull work. The skull is drilled with the large blunt drill, which automatically stops, the instant the inner table of the skull is pierced. The mechanism is so perfect that the dura is never injured. In experimental tests a piece of wet paper placed on the inside of a dry skull has never been damaged by drilling the skull over it. The skull flap is then turned up by inserting the companion cutting tool into the hole thus made (see Fig. 5).

This automatic catch is a great improvement over the screw and screwdriver arrangement for holding the cutting instruments as used on the Hartley-Kenyon motor. In certain plastic work, especially fracture work, it may be necessary at one operation to employ several different cutting tools,—such as two sizes of single saws, twin

saw, different sized drills, and surgical lathe,—and also to interchange these several times. The automatic catch permits of almost as speedy a change of motor tool as of hand instruments, and is a most important feature of the outfit. As far as the author is aware, this is the first automatic catch to be incorporated into an electric motor surgical outfit, and it is almost indispensable to rapid work. Then, again, the screw-driver is a source of danger to the operator's gloved hand, because while loosening or tightening the screw, the motor shaft may turn, allowing the screw driver to push by and puncture the surgeon's glove.

When the motor tool is cutting, the handle,—which is placed at a right angle to the long axis of the motor,—is held in the operator's right hand; the base of the motor is grasped in the left hand, and the right foot manipulates the foot switch, which is placed on the floor beside the operating table, at a place convenient for the operator's foot. If found necessary, the position of the motor and the hands may be reversed.

## THE MANAGEMENT OF BREAST FEEDING, WITH CASE REPORTS.*

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IT would be presumptuous on my part to attempt to give this group of pediatricians many new points on breast feeding, but this is a subject of much interest to me, and I thought that this short paper, even if much was a restatement of old observations, might stimulate in yourselves and more especially through you the general practitioner and the laity a more keen appreciation of the value of breast feeding. Almost daily I see infants put on the bottle, when with a little tact and patience I believe many of them could have with much benefit remained at the breast fully or partly for some weeks longer. longer.

One would judge from the numerous articles written on artificial feeding and the scarcity of them on breast feeding that everyone was supposed to know all about the natural method. In fact, do we not over-estimate our ability to adapt artificial food to infants? During my post-graduate work it has always seemed to me that breast feeding did not receive its deserved amount of time. Much depends upon the general practitioner and his attitude, as with him rests the responsibility of ascertaining sometime previous to the expected date of delivery that the breasts and nipples are in good condition, any sunken nipples receiving appropriate treatment at this time. He should also inquire as to the mother's habits, digestion, condition of the bowels, etc., as these all have an important bearing on successful nursing, and the prospective mother should be impressed with their importance.

I recently saw an infant, the first child, put on the bottle because of sunken nipples, which could undoubtedly have been prepared for their natural function had the necessary precautions been taken earlier.

One frequently sees a mother try to nurse her infant for two or three weeks. Then the breast milk becomes deficient. This occurs because the mother is tired out by her new duties, from lack of sleep and by seeing her infant losing in weight. The mental attitude has an unfavorable influence on the milk secretion, and after a little time, of her own initiative or by the advice of a physician, the infant is put on a bottle.

Dr. Griffith has well said that the adjustment of equilibrium between the mother's milk and the infant's digestion should be awaited and no haste made to give up the natural food until we are well satisfied that a change should be made.

Lucy Nash says that few mothers understand that the baby's cry during the first two or three days before the flow of milk becomes established, is not a cry of hunger, but a natural process for the full expansion of the lungs. In consequence they become nervous and get into a nervous state which affects the milk supply unfavorably.

Very recently a mother told me that she wanted to nurse her infant, then six days old. She was giving the bottle four or five times a day until the breasts became active. The breast milk was slow in coming as might be expected. I advised that all artificial food be stopped and that the infant be put to the breast at regular intervals. A report three days later said that the breast supply was sufficient and the infant contented.

The breast milk is often said not to agree with the infant. Very frequently, however, the milk is not analyzed, and even if this is done it may be misleading owing to the method of obtaining the sample to be analyzed. I recall one case where the laboratory report said that the milk was very poor and insufficient to nourish any infant. The infant, however, remained at the breast and continued to thrive. I find that the majority of general practitioners do not appreciate the marked variation in fat percentages between the first and last milk obtained from the breast. My cases reported in this paper well show this variation. In one instance in a multipara I emptied one breast with a breast pump, saving the milk in four consecutive samples, the analysis of which follows:—

| | Fat. | Proteid. | Sugar. | Ash. | Total Solids. | Water. |
|---|---|---|---|---|---|---|
| No. 1 | 2.23 | .98 | 6.60 | .17 | 9.98 | 90.02 |
| No. 2 | 4.32 | 1.07 | 7.16 | .19 | 12.74 | 87.26 |
| No. 3 | 6.84 | 1.03 | 5.50 | .16 | 13.53 | 86.47 |
| No. 4 | 7.92 | 1.12 | — | — | — | — |

It is needless for me to mention the relation of infant mortality to breast feeding. It might,

* Read before the New England Pediatric Society, March 26, 1915.

however, be wise for us as physicians to impress this point more fully upon the mother. I believe that most mothers who thoroughly understand the value of even two or three months of breast feeding to their infants would make every possible effort to perform this duty.

Frequently an infant is allowed to nurse too often and at irregular intervals, both of which are bad for mother and infant.

Dr. Fisher says that 90% of poor mothers are able to nurse their infants, while only 17% of rich mothers are able to do so. This may be correct but from my experience I think that he gives too great a difference between the two classes, the 17% being too low.

Much has been written regarding the nursing mother's diet, and I believe that many physicians are inclined to restrict so much as to be a hardship for the mother. She gets to feel that this or that article of food is disturbing her infant and she becomes nervous in consequence.

I am inclined to allow a liberal diet, limiting only things known to disagree. I fully believe that the condition of the mother's nervous system is more important than her diet if that is reasonably good.

It has been said that a mother has an abundance of good milk and could nurse her infant, or that she has a scanty supply of poor milk and could not perform that duty.

Dr. McClanahan asks, Is there no middle ground between breast feeding and bottle feeding? He strongly advocates supplemental feeding in suitable cases.

I have even been criticized by physicians for trying to use supplemental feedings. I am, however, having good success with this method in many cases and feel that others would be well paid for their efforts along this line. I have today at the time of this writing seen a five-month infant, weighing 16 pounds and in excellent condition. The mother during the early weeks of nursing had very little breast milk, and her physician, a leading pediatrist, advised that the infant be put on the bottle. The mother, however, persisted with the breast feeding, the infant doing well. At three months one nursing was replaced with cow's milk. This is continued at present, the remaining feedings being from the breast.

This illustrates that it is not always possible to predict the functional activity of the breast.

The following cases are cited as representative of many in my files.

Case 1. Male; one month of age; birth weight 8½ pounds; weight when seen at one month, 9¾ pounds; breast-fed; nursing at two-hour intervals. There had been slight vomiting from birth, but the main difficulty was persistent colic, with loose stools, 3 to 5 daily, containing many fat curds. The infant had considerable eczema about the face and shoulders. The mother had become discouraged and tired out from lack of sleep so that it had been decided to put the baby on the bottle. An analysis of the breast milk showed the fat in the sample taken before nursing to be 2.25%, that taken after nursing 7.96%. The mother was directed to nurse her infant every three hours, for five minutes, this to be preceded by one-half to one ounce of water. Within a short time all vomiting and colic had stopped and the eczema much improved.

Case 2. Male, five weeks of age. This infant had been breast-fed for four weeks, during the latter part of which the mother, in consequence of her extra duties, became tired and nervous. The infant became fretful and colicky; the weight stationary at 8¾ pounds. The milk became scanty and at four weeks breast feeding was discontinued. The artificial food did not agree and I was consulted when the infant was five weeks of age. I returned the infant to the breast, supplementing a small bottle feeding after each nursing of five minutes' duration. The mother was as far as possible relieved of care and worry. The breast secretion soon improved and an analysis showed the first sample, fat 5.76%, the second, 7.75%. The artificial food was discontinued and three-hour nursings of five to eight minutes' duration ordered, preceded by water. The vomiting and colic were soon relieved and the infant began gaining six to eight ounces a week. At twelve weeks the weight was twelve pounds.

Case 3. Male; the second child; birth weight 9 pounds; breast-fed. From the first this infant had severe colic, keeping the household upset day and night. The mother was nursing the infant every two hours, day and night, in an attempt to keep it quiet. The breast was emptied at each nursing yet the baby seemed hungry. The mother was tired and nervous. The infant vomited frequently, the stools were numerous and contained many fatty masses. The weight had gradually increased to 10 pounds.

I first saw this infant when it was one month of age, at which time it had been decided to discontinue breast feeding. An analysis of the breast milk showed fat, 3.6%, and 6.2%. Five to eight-minute nursings at three-hour intervals were ordered after each of which the infant was offered one ounce of dextrinised barley gruel in a bottle. It was arranged so that the mother could have good rest at night and as a result conditions improved at once. A small amount of skim milk, and still later whole milk, was given with the gruel. The artificial food has been gradually increased as the breast secretion demanded and at five months the last breast feeding was given. At this time the baby weighed sixteen pounds, was firm and could nearly sit alone.

Case 4. This infant, the first child, was first seen during my dispensary service, November 25, 1914. At this time it was two months of age, its weight was 12 pounds, It had been breast-fed from birth and the mother brought the infant for advice as to what food to give, as the breast milk was deficient. The breast was emptied at each nursing and the infant not contented. I was unable at this time to secure milk for analysis. The mother was advised to nurse her infant every three hours for five minutes; following which two ounces of modified milk were offered, care being taken to have a nipple with small holes. The amount of artificial food was increased as seemed necessary. This infant was brought to the dispensary quite regularly for a period of nine weeks, then the mother went out of the city on a visit. This infant was next

seen at six months of age, at which time the weight was 17 pounds and the general condition good. The modified milk had not been increased. The breast milk of fairly good quantity showed the following analysis, before nursing, fat, 2.72%, proteid .79%; after nursing, fat, 11.52%, proteid not obtainable as sample was small.

## THE PRESENCE OF *B. DYSENTERIAE, B. PROTEUS VULGARIS, BACT. WELCHII,* AND *MORGAN'S BACILLUS No. 1,* IN THE STOOLS OF CASES OF INFECTIOUS DIARRHEA.

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AND

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THE interpretation of the results of any bacteriological study of a disturbance of the gastro-intestinal tract is extremely difficult, owing to the great number and variety of organisms present, and to the fact that under abnormal conditions, some of these may multiply so rapidly as to lead the investigator to believe that they are the cause of the condition rather than the result of it. We all work under more or less of a bias, and if we decide that some one organism is the cause of a pathological condition we are apt to spend most of our time in searching for this one bacterium and in neglecting other factors which may be the true cause of the trouble. We believe that this accounts to a great extent for the importance attached to the several organisms that have been described as the cause of infectious diarrhea in infants. In taking up a study of this condition we decided to examine a large number of stools for four of the organsims that have the best evidence in their favor as being the etiological agent, rather than to attempt a complete bacteriological examination of the stools. These organisms are *B. dysenteriae, B. proteus vulgaris, Bact. welchii,* and *Morgan's bacillus No. 1.*

The study was made on the Boston Floating Hospital during the summer of 1914, and while we regret that the work has not extended over more than one summer, we feel that our observations should be recorded. The hospital provides an ample supply of material, and a well equipped laboratory. A spirit of coöperation on the part of the staff prevails that goes far towards making the work a success.

Infectious diarrhea is characterized by more or less fever and prostration, tenesmus, and the passage of an increased number of stools. These stools contain mucus, and frequently blood and pus. A Gram-stained preparation made from the feces shows pus cells and bacteria, the majority of which are short Gram-negative rods lying free or in leucocytes and surrounded by a clear zone resembling a capsule. In addition, the stools have a characteristic odor that is recognized by those who have had considerable experience in examining them. The disease is an important one, in Boston at least, as it is very prevalent in the summer months, and the mortality among the hospital cases rises to between 40 and 50%.

The association of organisms of the dysentery group with these cases was first noted by Duval and Bassett[1] in 1902. They found dysentery bacilli in the stools of forty-two out of fifty-three cases examined. In 1904 was published "The Bacteriological and Clinical Studies of the Diarrheal Diseases of Infancy from the Rockefeller Institute of Medical Research." The laboratory studies were made by several workers under the direction of Dr. Flexner, in a number of eastern cities of the United States, and while the results of the different observers vary considerably, the dysentery bacillus was found in 63.2% of 412 cases examined. The work of Weaver and Tunnicliff,[2] Wollstein,[3] and Kendall[4] in this country, and of Leiner,[5] Auché and Compana,[6] Gildemeister and Baerthlein,[7] Siegel,[8] Bauer, Ellenbeck and Fromme,[9] Weihe and Schürer[10] Baerthlein and Howard,[11] and others in Europe, shows that the dysentery bacillus is found widely distributed in association with these cases. Immune substances such as agglutinins and complement fixing-bodies for the dysentery bacillus, have been found in the blood of these cases by a number of obervers.

Tissier,[12], Klein,[13] and Kendall[14] have shown in certain cases which are clinically infectious diarrhea, that spores of organisms belonging to the groups of *Bact. welchii* are present in apparently increased numbers. The last observer found that a certain percentage of cases from which he was unable to isolate dysentery bacilli, passed stools, a small portion of which inoculated into milk and the milk heated for twenty minutes at 80° and then incubated, caused a "stormy fermentation" in this medium. It is stated that stools showing dysentery bacilli and those from normal cases did not give this reaction. These cases are said to improve on a diet of buttermilk and to do badly on a high carbohydrate diet, while the cases of infection with the dysentery bacillus are said to react in the opposite manner. He concludes that organisms of the *Bact. welchii* group are the etiologic factor in cases giving this reaction, and says that the number of these cases varies from year to year. So far as we have been able to learn, no immune bodies have been demonstrated in the blood of these patients and very few cultural studies on the organisms isolated have been published.

In 1897, Booker,[15] working in Baltimore, studied a series of these cases and decided that *B. proteus vulgaris* was the cause of the disturbance, and for the last few years Metchnikoff[16] and his pupils have been working on this organism as the cause of summer diarrheas in infants. They give only a very brief description of their cases and state that blood and pus were present in the stools in only a few instances, so it is evident that many of their cases cannot be classified as infectious diarrhea as it is understood in this country. They seldom find *B. proteus vulgaris* on plates of Conradi-Drigalski medium made directly from the feces, but isolate it by making a stab culture from the stool into gelatine, and within from twenty-four to forty-eight hours transferring a loop of the liquefied gelatine to the condensation water of an agar slant. The greater motility of *B. proteus vulgaris* enables it to climb onto the surface of the slant more rapidly than the other organisms, and if it is present, it is often isolated in pure culture at the end of twenty-four hours. Metchnikoff's work has extended over a period of five years, and during this time he has examined two hundred and eighteen stools from cases of summer diarrhea and has isloated *B. proteus vulgaris* in two hundred and four cases. He only mentions having examined six normal stools and found this organism present in two of these. In thirty-three stools that were slightly abnormal, he found it present in eighteen. Rabbits only a few days old and young chimpanzees, when fed the stools from diarrheal cases, developed a severe diarrhea, and cultures from their intestines showed *B. proteus vulgaris* to be present in great numbers. Metchnikoff does not mention having isolated the dysentery bacillus from any of his cases, but Bertrand,[17] who studied fifty-five diarrheal stools and found *B. proteus vulgaris* in all, isolated the dysentery bacillus in fifteen cases. From the stools of twenty-four cases whose digestive tracts were apparently normal, the latter observer isolated *B. proteus vulgaris* only twice and the dysentery bacillus four times.

Morgan[18] has studied a very interesting organism which he regards as a factor and perhaps the most important one in the infectious diarrheas found in England. From one hundred and twelve cases that were studied, this organism, known as *Morgan's bacillus No. 1*, was isolated on MacConkey's bile salt neutral red agar plates in forty cases, while dysentery-like organisms were found only five times. Agglutinins for the Morgan bacillus were not found in the blood of cases from which it was isolated. When cultures of this organism were fed to young rats, a severe diarrhea, followed by death, resulted.

With this brief review of some of the more important papers bearing on the organisms under consideration, we will give the results obtained in our search for them in the series of cases studied.

The stools were passed into clean but not sterile pads, and as soon as possible were sent to the laboratory, where the various media were inoculated at once.

*B. dysenteriae.* For the isolation of the dysentery bacillus a suspension of the stool was made in bouillon and streaked over the surface of previously prepared Endo plates containing two per cent. of agar. After from sixteen to twenty hours' incubation, the plates were examined and suspicious colonies transferred to bouillon, and after five hours' incubation, transfers from the latter were made to two tubes of Hiss semi-solid media, one containing lactose, and the other mannit. Lactose was used, since occasionally cultures from colonies resembling dysentery on the Endo plates were found to produce acid in lactose, these being as a rule cocci. After these tubes had been incubated over night, the bouillon cultures whose sub-cultures showed growths characteristic of dysentery, were used for agglutination. The macroscopic test was used and was made by mixing one cubic centimeter of the culture with one cubic centimeter of a 1-500 dilution of anti-dysentery "Flexner" (mannit-fermenting strains) horse serum obtained from the Rockefeller Institute for Medical Research. This serum in a dilution of 1-1000 caused a complete agglutination of the mannit-fermenting dysentery bacilli after the tubes had been incubated for two hours and then allowed to stand in the cold for twenty hours.

The colonies of the dysentery bacillus on Endo plates are circular, translucent, and resemble drops of paraffine from one to two millimeters in diameter. While these organisms apparently grow readily on this medium, the number of colonies found in any one case was never very great, and oftentimes we failed to get them after repeated trials, though we were practically convinced from the appearance of the case that they were present in the feces. Repeatedly, the diagnosis was made on sub-cultures from the only dysentery-like colony on the plate. In two instances we were unable to isolate dysentery bacilli from the feces, in four separate attempts, yet they were obtained with ease at autopsy from the mucosa of the large intestine. In another case that clinically was infectious diarrhea and where the blood culture showed dysentery bacilli, we were unable to isolate these organisms from the feces though seven attempts were made.

Duval and Bassett[19] state that for the isolation of the dysentery bacillus, the media should be *distinctly acid to litmus* and they further say, "Should the reaction be neutral to litmus, the difficulty of isolation of *B. dysenteriae* is very much increased; and in the presence of an alkaline reaction, isolation is rendered almost impossible." Should this be true, it is not surprising that in this day of selective media (that are always alkaline to litmus) the dysentery bacillus

is so seldom found. This, together with the apparent scarcity of the organisms in the feces and the fact that a negative report is often given after one examination, may account for their being missed in a certain number of cases. It has been our experience that while this bacillus is very difficult to isolate from the stools, with the method we used, we could readily isolate it from the mucosa of the large intestine after death. We made a few attempts to isolate it directly from the mucosa of the rectum during life by the help of the proctoscope, but were not successful. A careful comparative study of the methods of isolation of the dysentery bacillus and an attempt to get some good "enrichment medium" is greatly needed, and we regret that the pressure of other work prevented our taking up this problem.

During the summer, ninety-one cases were diagnosed clinically as infectious diarrhea, but in twelve of these we did not have an opportunity to make a careful bacteriological examination of the stool. Of the remaining seventy-nine cases, fifty-four, or sixty-eight per cent. showed dysentery bacilli. Many of the cases that were negative entered the hospital after they had been sick some days, and in some instances two weeks after the onset of the disease. We feel certain that many of them had dysentery bacilli in their stools, though we were unable to isolate them. The blood of these cases should have been tested for agglutinins, but lack of time prevented our making these tests.

Not a single culture of the Shiga bacillus was isolated. All the infections were due to organisms of the mannit-fermenting group of dysentery bacilli and the majority of the cultures, sixty-eight per cent., belonged to the Hiss Y type. That is, they formed acid in media containing dextrose and mannit, but not in lactose, saccharose, maltose, and dextrin. The remaining cultures were about equally divided between the Strong and the Flexner types. This differentiation of the mannit-fermenting dysentery bacilli into groups is very unsatisfactory, as the cultures vary so in their ability to attack the higher carbohydrates. Intermediate forms between each two of the groups are common and it is difficult to classify them correctly. The organisms that ferment saccharose and maltose tend to lose this property and then would come under the Hiss Y group. This has occurred with several of our cultures and also with the "Flexner-Harris" culture that has been in our labortatory for a number of years.

The stools of twenty-eight cases, with a diagnosis of diarrhea due to indigestion, were all negative for dysentery bacilli. In marked contrast to the cases of infectious diarrhea, the Gram-stained preparations from these stools showed few or no leucocytes and a predominance of organisms that were positive to Gram.

The evidence in favor of the dysentery bacillus as the cause of infectious diarrhea in infants is its association with the majority of cases, the abundance of these organisms in the mucosa of the large intestine in acute cases, and the development of immune bodies to this organism in the blood of patients with this disease. While it has occasionally been found in the stools of individuals with an apparently normal digestive tract, these persons usually give a history of a previous diarrhea or an association with a case of this disease. The fact that it is apparently absent in a certain percentage of typical cases may be accounted for in some of the cases by the difficulty of isolation of the organisms, the use of unfavorable media, or to the examination being made rather late in the course of the disease.

*Bacterium Welchii.* The medium used in determining the presence of this organism was sterile fat-free milk in test tubes, the depth of the fluid being approximately six centimeters. A loop of the feces was transferred to the milk and emulsified by rubbing against the sides of the tube, after which the tube was immersed in a water bath at 80° C. for twenty minutes, and then incubated at 37° C. for twenty hours. At the end of this time the milk in some tubes was unchanged, in which case the reaction was said to be negative; in others, there was a solid coagulum, a smear from which showed organisms having the morphology of *Bact. welchii* when the reaction was said to be questionable, or there was the so-called "stormy fermentation," which was said to be a positive reaction. We fully realize that this is at best only a qualitative test for spores of gas-producing organisms, and while the organisms may have the morphology of *Bact. welchii* they should be isolated and studied, but we had neither the time nor the facilities for doing this work.

Simonds[20] has studied a number of strains of *Bact. welchii* and subdivides them into four groups, according to their action on glycerin and inulin. In the few cultures from infants' feces that were studied, those from diarrheal stools do not differ from those of the normal infants.

The results of the tests made on the stools from cases of infectious diarrhea and on those from various other cases are given in Table I.

TABLE I.

TESTS FOR SPORES OF ORGANISMS GIVING THE REACTION IN MILK THAT IS CHARACTERISTIC OF BACT. WELCHII.

| Clinical Diagnosis. | Number of Cases. | Reaction. Negative. No. | % | Doubtful. No. | % | Positive. No. | % |
|---|---|---|---|---|---|---|---|
| Infect. diarrhea. (Dysentery bacilli found.) | 53 | 35 | 66 | 12 | 23 | 6 | 11 |
| Infect. diarrhea.. (Dysentery bacilli not found.) | 37 | 19 | 51 | 11 | 30 | 7 | 18 |
| Indigestion with diarrhea ..... | 34 | 16 | 47 | 9 | 26.4 | 9 | 26.4 |
| Malnutrition .... | 14 | 5 | 36 | 5 | 36 | 4 | 29 |
| Normal ..... | 13 | 2 | 15 | 6 | 46 | 5 | 38 |

It will be seen that while this reaction in milk is produced by a certain number (11%) of cases showing dysentery bacilli, it is given by a greater number of cases of indigestion (26.4%), and by a still greater number (29%) of cases of malnutrition. In normal stools it was found with the greatest frequency, and while the number here recorded is small, the observations are confirmed by others made some years ago by one of us working under the direction of Dr. Theobald Smith and by the work of Knox and Ford,[21] who found *Bact. welchii* in the stools of eighteen children with normal digestive tracts. This organism is an inhabitant of the digestive tract of normal man and many animals, is frequently found in milk, and has been found by us to be present in the "Eiweiss" milk that has been recommended as a treatment for these cases. It is difficult to understand how an organism having such a wide distribution and being an inhabitant of the normal digestive tract can be the cause of this condition, and we agree with Knox and Ford that sufficient evidence that *Bact. welchii* is the cause of infectious diarrhea in children has not been produced.

In order to say that *Bact. welchii* is a possible cause of infectious diarrhea one should be able to show repeated negative examinations for the dysentery bacillus in the stools and negative immune-reactions for this bacillus in the serum. In addition, demonstration should be made by plate cultures that the spores or the vegetative forms of *Bact. welchii* were present in greatly increased numbers, and immune-bodies to this organism should be found in the blood. It might also be that cultural differences could be found between the organisms from cases of infectious diarrhea and those from normal individuals.

The obtaining of a "stormy fermentation" in milk inoculated with feces and then heated does not indicate that *Bact. welchii* is present in increased numbers, for we have shown that eight spores will produce this change in milk and a milligram of feces from a normal infant often shows many times this number of spores of this organism.

Early in the disease of infectious diarrhea the reaction for *Bact. welchii* is usually absent, but it appears after the acute stage has passed. This may account for the statement that cases showing this reaction usually recover, or it may be that this organism has an action antagonistic to the dysentery bacillus.

*B. Proteus Vulgaris.* For the isolation of this organism, stab cultures were made into gelatine from the suspension of the stool in bouillon, and after several days' incubation, provided the gelatine was liquefied, attempts were made to isolate it by transferring a loop of the fluid medium to the condensation water of slanted semi-solid media. Thirty-one cases showing dysentery bacilli were examined in this way and in twenty-one of these there was no liquefaction of the gelatine, so we have no evidence that proteus was present. In the ten cases where the gelatine was liquefied the organisms isolated in three cases belonged to the group of *B. coli;* in three to the *B. cloacae* group; and in four to the *B. proteus vulgaris* group. We, therefore, conclude that *B. proteus vulgaris* is frequently absent in cases of infectious diarrhea, and we have no evidence that it plays any part in the process. Its association with the more simple diarrheas is a subject that we will not attempt to discuss.

*Morgan's Bacillus No. 1.* This organism was isolated from Endo plates three times where dysentery bacilli were also present and six times where we were unable to isolate the latter organism. It is an extremely interesting organism from a bacteriological point of view as it attacks the hexoses forming acid and gas, but has no action on the di- or poly-saccharides or on the alcohol mannit. While it may play some part in the disease, we have no evidence that it is the primary cause of the trouble.

The same may be said of the organisms of the para-typhoid group and of pyocyaneus and the streptococci that are encountered so frequently. They must modify the disease of infectious diarrhea in one way or another, but we regard them as secondary invaders that multiply on account of the abnormal conditions produced by the dysentery bacillus. The part they play in the disease can be determined only by the most careful quantitative examinations of the stools and of the contents of the digestive tract at various levels, immediately after death, correlated with careful clinical observations. The study of the spontaneous diarrheas that occur in the lower animals, especially the disease that so frequently affects monkeys, should also throw light on this disease of children.

## CONCLUSIONS.

1. In order to isolate the dysentery bacillus from the stools of cases of infectious diarrhea, repeated attempts often have to be made, and the number obtained may be very few.

2. Dysentery bacilli, of the mannit-fermenting type, were isolated from sixty-eight per cent. of the seventy-nine cases studied.

3. Organisms of the *Bact. welchii* type are occasionally associated with dysentery bacilli, but they are found more frequently in the cases of simple diarrhea and still more frequently in normal stools.

4. We have no evidence that *Bact. welchii, B. proteus vulgaris, Morgan's bacillus No. 1,* the para-typhoid bacilli, or *B. pyocyaneus* are the cause of infectious diarrhea, though they probably influence the course of the disease that is apparently started by the dysentery bacillus.

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# A NOTE ON THE INVASION OF THE BODIES OF INFANTS BY *B. DYSENTERIAE.*

BY CARL TENBROECK, M.D., BOSTON.

[From the Laboratory of the Boston Floating Hospital and the Department of Comparative Pathology, Harvard University Medical School.]

THE isolation of dysentery bacilli from the blood culture made from an infant suffering from an acute attack of infectious diarrhea, made it seem worth while to study a series of cases, in order to determine the frequency of the invasion of the body by this organism. In the text-books one finds the statement that this is a rare occurrence, but in the literature there are a number of cases reported of positive cultures from the blood or from the organs.

Rosenthal,[1] in fifteen autopsies on adults, found dysentery bacilli in the liver and heart's

FINDINGS IN CULTURES MADE AT AUTOPSY

| Hospital Number. | Age. | Duration of Disease. | Clinical Diagnosis. | Dysentery Bacilli Isolated from Stools before Death. | Autopsy. | |
|---|---|---|---|---|---|---|
| | | | | | Time Post-mortem. | Pathological Diagnosis. |
| 1641 | 10 mos. | 35+ days | Inf. diar. | Yes | 9 hrs. 45 min. | Slight fol. colitis |
| 1692 | 11 mos. | 13 days | " " | Yes | 45 min. | Membranous colitis. |
| 1765 | 10 mos. | 10 days | " " | Yes | 15 min. | Membranous colitis |
| 1731 | 2 yrs. | 16 days | " " | Yes | 25 min. | Follicular colitis |
| 1775 | 4 mos. | 9 days | " " | No | 30 min. | Membranous colitis |
| 1788 | 8 mos. | 9 days | " " | Yes | 40 min. | Follicular ulcerative colitis |
| 1738 | 21 mos. | 16 days | " " | Yes | 60 min. | Follicular ulcerative colitis |
| 1699 | 3 mos. | 2 days | " " | Yes | 105 min. | Follicular ulcerative colitis |
| 1793 | 7 mos. | 20 days | " " | No. | 75 min. | Ulcerative follicular colitis |
| 1777 | 8 mos. | 19 days | " " | Yes | 15 min. | Memb. ulc. follicular colitis |
| 1850 | 10 mos. | 14 days | " " | Yes | 10 min. | Slight ulcerative colitis |
| 1842 | 4½ mos. | Not recorded | " " | Yes | 2 hrs. | Ulcerative follicular colitis |
| 1895 | 3 mos. | 7 days | " " | Yes | 15 min. | Membranous ulcerative colitis |
| 1908 | 20 mos. | 8 days | Intoxication | No. | 95 min. | Membranous ulcerative colitis |

blood in one case. Aveline, Boycott, and McDonald[2] report one case, in an adult, where dysentery bacilli of the mannit fermenting group were isolated from the spleen. Mühlmann[3] found dysentery bacilli in the liver three times and in the spleen once. Brückner[4] found organisms of the mannit fermenting type in the liver of an adult. Darling and Bates[5] isolated the Shiga bacillus from the peripheral blood of an adult on the seventh day of the disease.

The reports of the invasion of the body of infants by the dysentery bacillus are more numerous than those on adults. Duval and Bassett[6] found them in the liver in one case. Howland[7] made cultures from the organs of eight cases and did not succeed in finding the dysentery bacillus in a single instance. Knox and Schorer[8] found them in the liver in two cases. Kendall[9] isolated the Shiga bacillus from the blood of an infant on the sixth day of the disease. Gildemeister and Baerthlein[10] found dysentery bacilli of the mannit fermenting group in one case, and Baerthlein and Howard[11] found the same type of organisms in the liver or spleen of five cases.

Most of the writers do not state the number of cases examined, only reporting the positive results, and in many instances the type of organisms found is not given. There are only two instances of positive blood cultures, and in both of these the infection was due to the Shiga bacillus.

Early in the season of 1914 on the Boston Floating Hospital, a male baby with a provisional diagnosis of typhoid fever, entered on the service of Dr. Young. There was marked prostration, a temperature of 105°, and the stools were not those of infectious diarrhea. The onset of the trouble began two days before entrance. On the third day of the disease a blood

FROM CASES OF INFECTIOUS DIARRHEA.

| Bacteriology of | | | | |
|---|---|---|---|---|
| Liver. | Spleen. | Heart's Blood. | Ileo Cecal Lymph Node. | Mucosa of Large Intestine. |
| B. Coli group | B. Coli group | —— | B. Coli group | Dysentery bacilli |
| Cocci | Cocci | Cocci B. Coli group | Cocci | B. Coli group |
| Sterile | Pyocyaneus | Pyocyaneus | B. Coli group | Dysentery and pyocyaneus |
| Sterile | Cocci | Cocci | Cocci | B. Coli group. Cocci |
| Sterile | Sterile | Sterile | —— | Dysentery |
| Sterile | Sterile | Sterile | —— | Dysentery |
| Sterile | Sterile | Para-typhoid | Sterile | Para-typhoid |
| Sterile | Sterile | B. Coli group | B. Coli group | Dysentery |
| B. Coli group | B. Coli group | B. Coli group | B. Coli group | Dysentery and pyocyaneus |
| Sterile | Sterile | Sterile | B. Coli group | Dysentery |
| Sterile | Sterile | B. Coli group | Para-typhoid | Dysentery |
| Sterile | Sterile | B. Coli group | Growth not dysentery | Dysentery |
| Sterile | Sterile | Sterile | Sterile | Dysentery |
| B. Coli group | B. Coli group | —— | Sterile | Dysentery |

culture was made, and much to our surprise *B. dysenteriae* was isolated. In order to be sure of our findings, cultures were made a second time from the blood diluted with bouillon and a second strain of dysentery bacilli was isolated. Both of these cultures were agglutinated by anti-dysentery serum and in their sugar reactions corresponded to the Flexner type. That is, they form acid from dextrose, mannit, maltose, saccharose, and dextrin.

The patient soon passed stools that were characteristic of infectious diarrhea and after a long illness eventually recovered. Seven attempts were made to isolate dysentery bacilli from the dejecta, but they were never successful.

Blood cultures were made from eleven other cases of diarrhea, six of which had dysentery bacilli in the stools, the other five being clinically infectious diarrhea, but the organisms were not found in the dejecta. The cultures were all made a number of days after the onset and were all negative for dysentery bacilli and all but two were negative for all organisms. These two showed a coccus that may have been a contamination from the air.

In addition to the blood cultures, fourteen cases were autopsied soon after death, and a bacteriological study was made of the various organs. In making cultures the surface of the organ was seared and a piece of tissue the size of a bean was transferred to bouillon. As soon as the cultures showed growth, pure cultures were obtained and the organism was studied. Before an organ was said to be sterile, transfers were always made to a tube of sterile bouillon, even though there was no clouding of the original culture. The organisms classed as belonging to the B. coli group were motile and formed acid and gas in lactose, but their action on the other carbohydrates was not studied.

It will be seen by the results given in the table that while the liver and spleen of these cases often contained organisms, the dysentery bacillus was never found there.

Some few attempts were made to study the distribution of dysentery bacilli in the digestive tract. They were never found in the mucosa of the stomach, duodenum, or jejunum, but were abundant in the wall of the lower portion of the ileum and throughout the large intestine. The failure to find them in the three cases tabulated was probably due to the fact that plate cultures were not made from the suspension of the mucosa, but we depended upon streak cultures made on agar slants. The dysentery bacilli from all of our cases belonged to the mannit fermenting group.

### SUMMARY.

*B. dysenteriae* of the mannit fermenting group has been demonstrated in the circulating blood of an infant suffering from infectious diarrhea. Eleven blood cultures made from other cases of diarrhea and cultures made from the organs of fourteen cases were all negative for dysentery bacilli, and the one positive finding is probably an accidental invasion rather than a usual feature of the disease.

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## Reports of Societies.

### NEW ENGLAND PEDIATRIC SOCIETY.

MEETING OF MARCH 26, 1915, HELD AT THE BOSTON MEDICAL LIBRARY.

The President, Dr. E. M. BUCKINGHAM of Boston was in the chair.

The following papers were read:—

1. The Management of Breast Feeding, with case reports.* C. K. Johnson, M.D., Burlington, Vermont.

2. Air, Water and Light as Curative Agents. Roland G. Freeman, M.D., New York City.

### DISCUSSION.

DR. MAYNARD LADD: I have been asked to open this discussion, and there are one or two points that I would like to emphasize in Dr. Johnson's paper which are important. First, as to the weighing of the baby before and after nursing. I think that this is not done as often as it should be. By so doing we can secure a very accurate idea of the amount of milk which the child is getting, particularly in the early days, so that if the amount is insufficient we may give supplementary feedings until the breast milk comes in sufficient quantity to supply the needs of the child. If the supply is insufficient, the effect of the supplementary feedings on the mother is beneficial, for she is saved the anxiety which comes from seeing her child insufficiently nourished. This habit of weighing the child from time to time in the early days has given results now and then that have been rather surprising, especially with reference to the quantity of food that the new-born infant may occasionally take. I have frequently seen vigorous infants, nursing from the mothers with an abundant supply of milk, take from 3½ to 4 and even 5 oz. at a feeding,—a much larger quantity, of course, than is desirable. I think that the cases in which the supply of milk is large and the child vigorous and taking a large quantity, are the ones likely to do best on the long intervals between feedings. These babies often do perfectly well on 3½ and 4-hour in-

* See JOURNAL, page 278.

tervals, whereas the baby who is getting only 1 or 2 ounces at each nursing is not likely to go through that long interval without making his wants known.

Another point,—in regard to the analysis of the breast-milk. The analyses we get are often misleading. When we wish to get an idea of the quality of the mother's milk, especially in a case of disturbed digestion, we try to milk out with our fingers, or by means of a breast-pump a sufficient amount of milk for examination. Sometimes we exhaust the quantity in the breast by the withdrawal of 1 or 1½ ounces, and yet if we have previously weighed the baby before and after nursings, we find that it has taken from 3 to 4 ounces. There is no reason to believe that the large quantity of milk which the child gets will have the same chemical composition as the small amount which we have been able to withdraw artificially for examination. That is a point which should be borne in mind where we have to empty the breasts of nervous mothers. When their supply is small it is very difficult to get enough milk to make a fair sample of that which the babies are getting.

In regard to the diet of the nursing mother, the suggestion of Dr. Southworth of the beneficial results of corn meal gruel is certainly worth mentioning. It seems to me that it has some virtue over other cereals, and is worth trying, particularly in cases where the quantity of milk is lacking.

Mothers are sometimes very unfairly blamed for not nursing their babies. They should of course be encouraged to nurse to the extent of their ability, but there is no question that many must fail, in spite of our best efforts to preserve the quality and quantity of the breast-milk. The popular idea that every woman, who is milking, can nurse her child often leads to unjust criticism of the mother who has to put her baby upon substitute feeding because of the unavoidable failure of the natural supply.

DR. JOHNSON (in closing): I fully agree with what Dr. Ladd has said in regard to weighing, only I should add to that, that it is important to have more than one weighing in the 24 hours. The infant should be weighed after every nursing in the 24-hour period, for the amounts taken at the different nursings vary very greatly in quantity, from 2½ oz. at one feeding to 4 or more at the next, and so on.

Abstract of paper on

### AIR, WATER AND LIGHT AS CURATIVE AGENTS.

By DR. ROWLAND GODFREY FREEMAN, New York: This paper emphasized the potency of air, water and light as curative agents and their great advantage in most cases over medicinal treatment.

It took up the sedative and stimulating effects of baths at different temperatures. Some of the results obtained by heliotherapy in France and Switzerland were reviewed and a plea made for a larger use of this treatment, particularly in tuberculous cases. Treatment of disease in well-ventilated rooms or preferably out of doors was then considered, with some consideration of the action of fresh air on the child; the method of carrying out such open air treatment, and finally the results of such treatment in tuberculosis, measles, pneumonia and abnormal conditions of the blood.

DR. J. P. MORSE: I am very glad indeed to hear this paper of Dr. Freeman, and to hear him emphasize the advantages of real old-fashioned medicine. It seems to me that he ought to add good food to air, water and light in the treatment of disease. I am very glad, also, to hear what he says about artificial ventilation, which in my opinion does not ventilate at all. It may surprise some of you, moreover, to learn that it is against the laws of Massachusetts to build a schoolhouse or a public hall without installing a special system of artificial ventilation. You have got to have it, whether you use it or not.

I must say that my experience makes me believe that, while fresh air is a good thing in bronchitis and croup, cold air is not a good thing in the said affections, and that cold air does make them worse. I have used the fresh-air treatment in pneumonia ever since Dr. Northrup brought it to our attention a number of years ago; in fact, I may say that I fought shoulder to shoulder with Dr. Northrup in the beginning, but I am not convinced, nevertheless, that the mortality in pneumonia in children has been diminished by the fresh-air treatment. It seems to me that it is very hard in comparing statistics to bring in bronchopenumonia for comparison, because it makes so much difference what is called bronchopneumonia. You may have a bronchopneumonia which is merely nothing more than a mild bronchitis, or you may have the very severe types of bronchopneumonia. As regards mortality, they are two different diseases.

DR. E. M. BUCKINGHAM: With regard to the general effect of fresh air, I happened to have charge of the contagious wards of the City Hospital the winter before the opening of the present service; and the diphtheria ward was badly crowded, because of an extensive epidemic. About the first of February, I had moved to a piazza on every sunny day, as many patients as it would hold, an appreciable proportion of the whole, the patients spending the whole day in the open. I cannot now give statistics, but the effect on the general appearance of the service was marked and immediate, on some individual patients particularly so.

As to the effect of cold air on bronchitis, I would say that one of my duties many years ago was to arrange for out-patient clinics. One cold winter, I often found striking cases of sonorous râles and reserved them. It was very common, however, when the students arrived, and the child had been waiting for an hour, more or less, in a warm room, to find that these râles had disappeared completely. This happened so very often that there could be no accident about it.

DR. J. B. HAWES: Dr. Freeman, in his valuable paper, has brought up so many interesting points that it is impossible to dwell upon them all. I was very glad to hear what he had to say upon the comparative uselessness of artificial systems of ventilation. I have felt very strongly for a long time that so-called "baked air," no matter how perfect the system which may conduct it into rooms, has lost a certain most important and vital quality.

I would also emphasize the importance of cold sponge baths in the morning, but would sound a note of warning in this regard. Among school children particularly, this is apt to be carried to an extreme, and the water is apt to be so cold as to do harm rather than good. It is important to see that the water is at such a temperature which will bring about a marked reaction. Water colder than this is certainly not beneficial.

That part of Dr. Freeman's paper which interested me most, was what he had to say concerning heliotherapy. Were it not for the photographs of

actual patients which Dr. Rollier has shown and from the accounts of patients who have been at Leysin, none of us, I think, would be inclined to believe the statements of the remarkable cures of tuberculosis which he has brought about. It is well to remember that, although this method of treatment has certainly been neglected in the past, and should be used infinitely more than it is here in this country, we cannot expect, under these conditions, the brilliant cures which Dr. Rollier has obtained. The climatic conditions here are too different. Not only is the amount of actual sunlight infinitely less, but the air is far denser and more moist. We must not forget that there are many, many factors involved in the cure of that most chronic of all diseases, tuberculosis. Heliotherapy will prove a valuable agent, but in using it we must not forget older and well tried methods.

Dr. Freeman spoke of two cases of tuberculous dactylitis in which he obtained remarkable results with heliotherapy after other methods had failed. At my clinic at the Massachusetts General Hospital, I have two young boys of four and six years, brothers, each of whom has a tuberculous dactylitis. These boys live at a considerable distance, in New Hampshire. They certainly do not come often enough for the tuberculin which I have given them to be an appreciable factor. They have not been under close enough supervision for me to carry out heliotherapy, and the hygienic advice which I have given them has involved nothing more than ordinary decent living. They both, however, have been apparently entirely cured under a few months of this regime. In other cases of tuberculous cervical adenitis in which Dr. Freeman stated that he had excellent results, I would call your attention to the figures of Dr. Freeman's fellow-townsman, Dr. Dowd of New York, who has reported a series of cases of this condition in which he has had unbelievably good results from the so-called radical operation. In my own clinic at the Massachusetts General Hospital during the past five or six years, I can show a fairly large series of most excellent results which I can attribute only to the use of tuberculin, conservative surgery, and good hygiene.

I am very glad, however, that Dr. Freeman has emphasized the value of heliotherapy, and feel that it will distinctly increase our armament in combating this disease.

DR. F. B. TALBOT: I was very much pleased to hear Dr. Freeman's paper and I have been interested in every word that he has said. At the Massachusetts General Hospital we have a very small, dark and dirty ward. Late each spring, this ward is moved out into tents by a street which is noisy and dusty and dirty. The principal difference in the two wards is that one is out of doors and the other is indoors. We have been very much surprised to see how well the babies do in the tents, out of doors. Our only trouble has been with the very poorly nourished babies during the cold nights, when it is sometimes difficult to keep them warm. I was particularly interested in what Dr. Freeman said about the use of water. I believe that one of the most serious conditions that we have to deal with in children who are vomiting or who are having diarrhea is dessication of the tissues. When the tissue juices get concentrated, the normal functions of the body cannot act in a normal way and many children, I believe, have died merely because they have not had enough water.

DR. FREEMAN (replying to Dr. Place): They are all improved by fresh air, if it is not dusty air. I think that those children should be kept out of strong wind and dusty out-of-door air in stormy weather—they can be out any day excepting a blustery, dusty, dirty day. I think the out-of-door treatment always improves them.

DR. F. P. DENNY: I should like to ask Dr. Freeman how much in heliotherapy is to be attributed to the bronzing of the skin from the effects of the sun and how much to the exposure of the body to cold air. It seems to me we have two very radical things and it is hard to decide which is the more important. There certainly must be a great loss of heat in those children with their bodies exposed.

DR. MAYNARD LADD: May I ask Dr. Freeman if his mortality of 14% in bronchopneumonia at the Roosevelt Hospital included the bronchopneumonias which are so frequently secondary to diphtheria, pertussis, scarlet fever, etc.; and whether such cases were admitted to the hospital?

DR. FREEMAN: In regard to the first question, I imagine that the advantage of heliotherapy is in the sun's rays. Those who are in favor of this treatment like to see the skin well tanned, as they seem to get better results where the skin is well tanned. Whether this is important or not, I do not know.

In reply to the second question, I would say that few of those cases were complicating the communicable diseases, because we will not take these cases into the hospital if we know it, for fear they may spread the disease in the wards.

## Book Reviews.

*Alveolodental Pyorrhea.* By CHARLES C. BASS, M.D., and FOSTER M. JONES, M.D. Philadelphia and London: W. B. Saunders Company. 1915.

The variety of literature, which within the past ten years has appeared on the subject of pyorrhea alveolaris, and the variety of names which has been given to this important condition, are evidence that the disease is thus far not completely understood nor its prevention and treatment fully determined. The present monograph, like others that have been reviewed in previous issues of the JOURNAL, attacks the subject from a new standpoint, regarding the disease as a specific infection by the entameba buccalis. The history, etiology and pathology of the condition are successively discussed, and its symptomatology, diagnosis, treatment and prophylaxis outlined. Essentially the prophylaxis depends on the avoidance of trauma to the gums and the daily rinsing of the mouth with a solution of fluid extract of ipecac or of emetin. Whether or no the conclusions reached by the authors are definitive, time alone will determine, but in any event the work seems a valuable contribution to the study of the subject. It is well illustrated with forty-two figures in the text.

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## THE ILLNESS OF SIR WALTER SCOTT

IN the issue of the *Edinburgh Review* for January, 1913, appears an interesting discussion by the librarian of the Royal College of Surgeons of the illness of Sir Walter Scott, which the author himself describes as gastric cramp, but which at the time was diagnosticated as gallstones. This article is written in conjunction with the publication of the Scott-Baillie letters, which were first given to the public at that time.

Dr. Matthew Baillie, for many years Scott's private physician, is described as a model of this type, one of the finest of a bygone school. In August, 1818, while in attendance on King George III at Windsor Castle, Dr. Baillie beguiled his leisure by writing his personal memoirs, in which he speaks particularly of his lifelong friendship with Sir Walter. Baillie died in 1823, of what was then called consumption, though from the description of his symptoms it seems much more likely to have been malignant disease.

Of Scott's illness we read at length in Lockhart's familiar biography. It manifested itself first acutely on the night of March 5, 1817; and in February, 1819, Sir Walter suffered from so severe an attack of pain that his immediate death was expected. Among the Scott-Baillie letters from the collection in the Library of the Royal College of Surgeons, to which they were presented by Dr. Baillie's son, is the following joint communication to Mrs. Baillie by Scott and his daughter, later Mrs. Lockhart. This letter, recently first published in the *Edinburgh Review*, and reprinted in the issue of the *British Medical Journal* of February 8, 1913, apart from its literary interst, constitutes a piece of valuable clinical symptomatic evidence of the nature of Scott's malady:—

"My dear Mrs. Baillie

I am sorry to be obliged to give you a very poor account of Papa's health, the spasms never leaving him for more than twenty-four hours at a time. We took the liberty of making Doctor Clarkson who attends him here write his case to your brother (Dr. Matthew Baillie) to request his advice. Papa would have wrote himself, but he has not been able to write for some time, for he has really been dangerously ill and is still very very weak. and is so very much disheartened with the constant return of the spasms that he is quite miserable, but we are in great hopes that the spasms are not so dreadfully violent these two last days. That is the only thing that comforts us. He sends you a letter from Mrs. Siddons (daughter-in-law of Sarah Siddons) he ought to have sent you long ago, but he has been so ill that he quite forgot it.

Dear Miss Baillie, I hope soon to be able to write you a better account of Papa than I can do at present and I hope that you will excuse the shortness of this letter, but I have so few minutes to spare from attending Papa and so tired from being up almost every night that I must conclude with subscribing myself in haste

Very affectionately yours
CHARLOTTE SOPHIA SCOTT.

Abbotsford, Friday 26th, 1819.

(The following is in Sir Walter's handwriting:)

Turn over

Dearest friend

I cannot let Sophia's dolorous epistle go without adding two lines to say that I think I am now getting really better. The combat between the medicines and the disease having been carried on entirely at the expence of my body corporate I feel after so long and obstinate a conflict as I suppose the town of Saragossa did when it had been so desperately attacked and defended. I have no apprehension of any great danger, but till of late the agony was intolerable and lasted six, seven, and eight hours without in-

termission. The fever is now much milder. I have reason to thank God for placing me in circumstances so much above my deserts in every respect and am much too grateful for the blessings which have attached themselves to me in every respect than disposed to murmur under the natural evils of humanity. Kind love, my dear friend, to your sister, Mrs. Baillie, the Dr., and believe me always, well or ill, most affectionately yours W. S.

. . . My hours have been divided betwixt pain and stupidity."

In April, 1819, Scott again suffered from a violent attack of pain and again believed himself about to die; but upon the amelioration of his symptoms, he sent the following letter to Dr. Baillie describing his experience:—

"Dear Sir,

The Greeks were, I believe, allowed to consult Esculapius by proxy while they were patients, but on recovery were expected to pay their grateful thanks in person. I need not say how much I was obliged by your kind attention to Mr. Clarkson's letter, which gave us all much confidence, which in the extremity of pain and subsequent exhaustion I really could not have drawn from less authority than yours.

The quantity of opium and anodynes of all kinds, I was obliged to swallow during these paroxysms, often with little effect, was truly frightful. But, thank God, the last returns of the pain have been of a description so mild as to yield to the hot bath alone. I begin to sleep at nights, and crawl out on my pony by day, and my bowels seem to be regaining their natural state. I had hoped to have seen you, Mrs. Baillie, and my excellent friends your sisters this spring, but that is now impossible. Some time in the year, however, I may come up for the purpose of getting my son settled in the army.

Believe me, my dear sir,

Very sincerely,

Your obliged and grateful servant,

(Signed) WALTER SCOTT.

Abbotsford, 17th April."

Throughout the remainder of his life, Scott continued to be afflicted periodically by these paroxysms of pain, presumably due to gall-stones, and indeed performed a large amount of literary work during periods of actual suffering. "The Bride of Lammermoor," in particular, was dictated during the intervals of mental activity following the administration of opium for these attacks. In his "Memories of Sir Walter Scott," edited by Mr. Basil Thompson, Mr. James Skene, a friend of the novelist, gives the following description of the latter's illness, which again presents valuable and vivid primary evidence of the nature of his attacks:—

"Under the infliction of a severe illness, Sir Walter had for nearly two years to struggle for his life, and only the natural strength of his constitution at length enabled him to throw it off. But with its disappearance, although he was restored to health, disappeared also much of his former vigour of body, activity, and power of undergoing fatigue, while in personal appearance he had advanced twenty years in the downward course of life; his hair had become scanty and bleached to pure white, the fire of his eye was quenched, his step was more uncertain—he had lost the vigorous swinging gate with which he used to move—in fact, old age had by many years anticipated its usual progress, and had marked how severely he had suffered. The complaint, that of gall-stones, caused extreme bodily suffering. During his severest attack he had been alone at Abbotsford with his daughter Sophia before her marriage to Mr. Lockhart, and had sent to say that he was desirous I should come to him, which I did, remaining for ten days, till the attack had subsided. During the course of it, the extreme violence of the pain and spasmodic contractions of the muscles of the stomach were such at times that we scarcely expected that his powers of endurance could sustain him through the trial, and so much was he exhausted by some of the attacks as to leave us in frightful alarm as to what the result had actually been. One night I shall not soon forget: he had been frequently and severely ill during the day, and in the middle of the night I was summoned to his room where his daughter was already standing at his bedside, the picture of deep despair. The attack seemed to be intense, and we followed the directions left by the physician to assuage the pain, which for nearly a full hour bid defiance to our best endeavours. At length it seemed to subside, and he fell back exhausted on the pillows; his eyes were closed, and his countenance wan and livid. Apparently with corresponding misgivings, his daughter at one side of the bed and I at the other gazed for some time intently and in silence on his countenance, and then glanced with anxious inquiring looks at each other, till at length I placed my fingers on his pulse, to ascertain whether it had actually ceased to throb. I shall never forget the sudden beam which brightened his daughter's countenance, and for a moment dispelled the intense expression of anxiety which had for some time overspread it, when Sir Walter, aware of my feeling his pulse, and the probable purpose, whispered with a faint voice, but without opening his eyes, 'I am not *yet* gone.' After a time he recovered, and gave us a proof of the mastery of his mind over the sufferings of the body. 'Do you recollect,' he said to me, 'a small round turret near the gate of the Monastery of Aberbrothwick and placed so as to overhang the street?' Upon answering that I did perfectly, and that a picturesque little morsel it was, he said: 'Well, I was there when a mob had assembled, excited by some purpose which I do not recollect; but, failing in their original purpose, they took um-

brage at the venerable little emblem of aristocracy which still bore its weather-stained head so conspicuously aloft, and, resolving to level it with the dust, they got a stout hawser from a vessel in the adjoining harbour, which a sailor lad, climbing up, coiled around the body of the little turret, and the rabble, seizing the rope by both ends, tugged and pulled, and laboured long to strangle and overthrow the poor old turret, but in vain, for it withstood all their endeavours. Now that is exactly the condition of my poor stomach. There is a rope twisted round it, and the malicious devils are straining and tugging at it, and faith, I could almost think that I sometimes hear them shouting and cheering each other to their task, and when they are at it I always have the little turret and its tormentors before my eyes."

It is pathetic to realize that, less than a century ago, the later years of one of the world's greatest geniuses were tormented by a malady that modern surgery would easily and safely relieve. That in spite of this affliction he accomplished the enormous and brilliant literary labor of that period of his life remains, perhaps, one of the best evidences of the transcendence of his intellectual powers.

## DE-ALCOHOLIZATION OF BEVERAGES AS A PREVENTIVE OF INEBRIETY.

In another column of this issue of the Journal we publish an article by Dr. Irwin H. Neff on "The Practical Treatment of Inebriety" based on his experience at the Norfolk State Hospital. Since the establishment of such institutions devoted solely to the treatment of alcoholic inebriates, it is noteworthy that the improvement obtained in this class of cases by the application of special methods and by segregation has been more marked, rapid and permanent than when these patients were mixed with the inmates of other state institutions.

However great the progress of recent years in the treatment of alcoholism, it is nevertheless to be recognized that beyond, and far more important than, the treatment of the individual inebriate is the prevention of inebriety in the community. This problem for which so many different solutions have been suggested and attempted,—by prohibition, by restriction, by popular education,—must be regarded as still being far from an adequate settlement. It remains, in fact, one of the greatest present problems of civilization. One may doubt even whether the reported decline in the consumption of alcoholic beverages among certain of the belligerent European countries either is as extensive as alleged or will continue under the conditions that must follow the cessation of hostilities.

As a matter of fact, perhaps the greatest shortcoming of all methods aimed at the prevention of inebriety is their failure to supply any adequate gustatory substitute for the great variety of pleasant alcoholic beverages to which mankind has so long been accustomed. Doubtless a certain proportion of drinkers consume these beverages solely for the sake of their stimulative effect. It seems probable, however, that a considerable number of persons, especially the moderate and convivial drinkers, whose motives are largely social and aesthetic, drink chiefly on account of the agreeable taste of the beverage which they consume. Now the suggestion has recently been made that for drinkers of this latter class, who are chiefly of the more intelligent type and would be quite willing to give up the stimulus of alcohol, a large number of agreeable substitutes for alcoholic drinks might be provided by the de-alcoholization of beers and wines, a process whereby the alcohol is almost entirely removed and the taste not affected.

The process of de-alcoholization, as described in an article by Mr. O. Overbeck, F.C.S., F.G.S., in the issue of the *Medical Press and Circular* for July, 1914, consists in blowing through the fermented liquor, at a temperature lower than that of the human body and in a suitably constructed plant, the waste gas produced during fermentation. This procedure leaves the resultant liquid unaltered in every respect, except for the removal of its alcohol, and may be continued until the alcohol is entirely removed, or may be checked at a point where the beverage contains only 1% or 2% of alcohol, the amount commonly found in fermented ginger beer and other so-called temperance beverages. The use of the waste gas of fermentation is adopted as a measure of economy; but carbonic acid gas from any other source, or indeed any neutral gas such as nitrogen, may be employed with the same effect.

Samples of beers and wine de-alcoholized by this method have been analytically and critically examined by the British government, which has found that the alcohol had been truly abstracted from these beverages, that it was not reproduced on keeping, and that the beverage itself was in

each case as brilliant and palatable as the alcoholic original.

"Wines of all descriptions, whether sparkling or still, can be de-alcoholized and yet sold in their ordinary state, the difference in flavour being almost imperceptible. In the case of very highly alcoholic wines, such as old port or sherry, the only effect is to lower slightly their somewhat spiritous taste. Perhaps the most marvellous effect accomplished by this process is the complete sterilization of the resulting liquid. After fifteen months a beer de-alcoholized to half the strength of ginger beer was found absolutely identical in spirit content, although no preservative whatever had been added. This is explained by the mechanical violence of the action of the gas as it is passed through. The $CO_2$ is driven through the circulating system with such violence that, not only is the whole of the liquid converted into a mass of froth whilst the action is taking place, but the delicate yeast cells, to which fermentation is due, become ruptured and killed. It is also probable than many superficial spores and cells are blown away by the gas in the form of microscopic dust from the thin sides of the fine bubbles produced. This process when continued for two hours and a half is sufficient completely to sterilize the liquid. It also carries away such other spores as may be present, into the large volume of water containing the preservative agent through which the gas has to pass in order to be deprived of its alcohol before it undertakes its next career through the liquid which is being acted upon."

If these statements be true it would appear that a method has been devised whereby a large number of alcoholic beverages may at once be deprived of the alcoholic content which makes them injurious and at the same time remain as palatable and attractive as before. Whether or not the de-alcoholization of high proof spirits is also possible remains to be determined. In any event the employment of de-alcoholized wines and beers as beverages would seem to be a possibility of definite value as a preventive of alcoholic inebriety.

## ENLISTMENT OF CONSUMPTIVES.

THE problem of whether or not to recruit men who have had tuberculosis does not now present any great urgency to the United States Army medical officers, but it may do so at any time. Of course there can be but little dissension when the general statement is made that candidates suffering from an active pulmonary condition should not be enlisted, no matter what the exigencies of the situation, but in regard to the so-called cured patients there must exist more difference of opinion.

Dr. L. Thieme, medical superintendent of the Leipzig Sanatorium in Voightland, published his views on this subject in the *Muenchener medizinische Wochenschrift* for March 16, 1915. By consulting the military records he found that 241 of his former patients were in the German army. These, presumably, had not been recognized as such by the recruiting officers, for the latter had rejected 621 of his former patients. Dr. Thieme states that these 241 represent about one-fifth of all his discharged male patients of military age and concludes therefrom that his sanatorium treatment is highly successful.

We are inclined to think, however, that this deduction is somewhat premature and a little too optimistic. It is quite conceivable that many of these phthisical soldiers will break down eventually under the rigors of the present war. In fact, Dr. Thieme admits that 28 of his former patients were accepted at first but broke down later.

Military life with all its stress and strain, especially when a country is at war, will hardly appeal to medical men as a proper occupation for consumptives who have at one time been sufficiently affected to require sanatorium treatment. There must also be considered the danger of contagion in a crowded camp, should the disease process again become active. Considering the immense population which this country could draw from in case of war, it would seem that recruiting officers would be justified, even in a great national emergency, in refusing applicants who had suffered from tuberculosis.

## SANITARY CONDITIONS OF BOSTON STREETS.

WITH the movement on foot to improve the paving of the streets of Boston a good opportunity arises also to do something to improve the sanitary conditions at the same time. No better demonstration is needed than to walk through our streets on a windy day. Dr. Sachs of New

York, in a lecture before the Academy of Medicine brought out some very pertinent facts in regard to the relation of the medical profession to street conditions. While his remarks were directed to conditions in New York, they may apply just as well to Boston.

As a city like Boston grows in population, special problems arise, and if we cannot lead, we can at least profit by results worked out for the public good in other cities. In regard to street conditions there seems to be a feeling of indifference. This may be due to the fact that the problem is divided between a number of departments. Nevertheless the streets cannot be kept clean unless all coöperate. Dustless sweeping should be enforced not only of the roadway but of the sidewalk. To walk down town on any of our main streets, even at 8.30 a.m., on a pleasant day means getting dust in the eyes, nose and mouth. The sidewalk in many sections is worse than the street. We cannot get rid of dirt entirely, but it can be minimized. The open garbage can in the alley is another menace. In warm weather it is a fly and disease breeder. It would seem that no argument should be needed to sustain the the proposition that all garbage cans and wagons should be covered.

The street department often has to bear the blame of conditions for which it is not directly responsible but because its work is hampered by various influences. Blocking of streets by building material, destruction and obstruction of highways by public service corporations, impair efficiency and discipline among the employees of the cleaning and repairing departments.

Dr. Sachs shows that in one of the most congested districts of New York City, the East 5th street police district, where the health, police and street departments work together, the streets on a busy day were found to be in a high state of cleanliness. Sooner or later the public must think of this problem and the medical man will be called on for advice in order that best results with most economy may be obtained.

## MEDICAL NOTES.

Hot Weather and the City's Health.—Figures issued by the New York Department of Health on July 31 showed that despite the hot weather of the past week, the death rate was .12 of a point lower than for the corresponding week of last year. This decrease in rate is equivalent to a saving of 13 lives. As compared with the previous week, there was an increase of 29 deaths caused by the greater number of deaths from diarrheal diseases under five years. As might be expected, the deaths of infants under five years of age showed a rather sharp increase. The deaths of persons over 65 years, however, showed a very marked increase. The total for the 31 weeks of 1915 is 13.50 as compared with 14.28 for the same period of 1914. There were 1328 deaths in the City of New York during the past week with a corresponding rate of 11.94. The lowest rate was seen in the Borough of Richmond; the highest in the Borough of The Bronx.

Honorary Degrees to Physicians.—The University of Edinburgh has recently conferred the honorary degree of LL.D. on Dr. W. A. Herdman, professor of zoölogy in the University of Liverpool, and on Dr. Arthur Thompson, professor of anatomy at the University of Oxford.

Award of Medals for Scientific Exhibits.—The following award of gold medals is announced for scientific exhibits at San Francisco:—

"To the pathological departments of Stanford University and the University of Michigan; to the Indiana State Board of Health, for its exhibit on a public health campaign; to Drs. C. C. Bass and F. M. Johns, of Tulane University, for their exhibit on pyorrhea alveolaris and malaria; to Drs. Claud A. Smith and J. Witherspoon, on hookworm; to the pathological laboratory of the New York Lying-in Hospital, on the demonstration of the cultivation of human tissue *in vitro;* to Dr. Martin H. Fischer, of Cincinnati, on newer experiments in the physiology and pathology of kidney functions; and to Dr. J. T. Case, of Battle Creek, on lantern slides illustrating Roentgen-ray studies."

Smallpox Case in Plainfield.—Report from Plainfield, N. J., states that a death from virulent smallpox occurred in that city on Aug. 5, the patient being a man brought that morning to the city from Metuchen. Extensive vaccination and quarantine of contacts has been instituted.

Prevalence of Malaria, Meningitis, Pellagra, Poliomyelitis, Smallpox and Typhoid.—The weekly report of the United States Public Health Service for July 30, notes that during the month of June, 1915, there were reported 19 cases of cerebrospinal meningitis in Massachusetts; and in Mississippi, 5 cases of meningitis, 10,703 of malaria, 3,195 of pellagra, 7 of poliomyelitis and 536 of typhoid fever. During the same month there were in Ohio also 7 cases of poliomyelitis, 356 of smallpox, and 242 of typhoid. There were 103 cases of typhoid in Massachusetts and 220 in South Carolina.

Plague in Asiatic Countries.—During the period from March 26 to May 20, 1915, there

were reported in Java 582 cases of bubonic plague, with 521 deaths; in Kuachi, India, 464 cases with 386 deaths between May 2 and June 5; and in Bagdad, from May 2 to 15, 418 cases with 293 deaths.

DEPARTMENT OF HEALTH, BUFFALO, N.Y.—The recently published report of the Department of Health of the city of Buffalo, N.Y., for the year ending December 31, 1914, is presented in a pamphlet of 230 pages with numerous tables of statistics and pictures of the infant welfare stations, dental dispensaries and tuberculosis schools. The organization of the department of health of that city consists of Francis E. Fronczak, M.D., as health commissioner, an assistant health commissioner, and 242 members of the following bureaus and divisions: bureau of vital statistics, of plumbing and drainage, of chemistry, of bacteriology, of sanitation, of food and drugs, of hospitals, of child hygiene, and the psychopathic bureau. The bureau of child hygiene includes the divisions of infant welfare, midwifery, children's institutions, medical and dental school inspection, and child labor. The total death rate for the city was 15.50 per thousand and the birth rate 27.77 per thousand. The principal cause of death was pulmonary tuberculosis, the total number dying from this cause being 633. The total number of deaths from communicable diseases was 1,172. One thousand five hundred and thirty-three children died under one year, of which number 439 died from diarrhea and enteritis. Four hundred and forty-four deaths were due to violence. As an exhaustive record of the very efficient health department administration of this city, the report is interesting and commendable.

FOOT AND MOUTH DISEASE IN ILLINOIS.—Report from Chicago on Aug. 9 states that several new cases of foot and mouth disease have been discovered among livestock in Wheeling, Ill. A five-mile quarantine district has in consequence been established about that town.

## EUROPEAN WAR NOTES.

CHOLERA AND TYPHUS FEVERS IN AUSTRIA.—Report from Vienna, by way of Zurich and London, states that on Aug. 4 the total number of cases of Asiatic cholera in the Austrian Empire amounted to 629. From April 25 to May 8 there were reported 645 cases of typhus fever in Austria, mainly among soldiers, prisoners of war, and persons from Galicia.

A NEW ANTISEPTIC MIXTURE.—A press report from Paris on Aug. 5 states that Professor Landouzy has recently announced to the French Academy of Science that Dr. Alexis Carrel and Dr. Henry D. Dakin, of the Compiègne military hospital have used with great efficacy in the treatment of infected wounds an antiseptic mixture of hypochlorite and carbonate of lime and boric acid. Future scientific confirmation of the value of this reported discovery will be awaited with especial interest.

RELATIVE DEATH-RATES OF GERMAN WOUNDED.—In last week's issue of the JOURNAL we published a statement from the *Lancet* relative to the high death-rate prevailing among British wounded in the war. In the issue of the *Berliner Tageblatt* for July 10 appears the following tabulated statement of the relative death and recovery rates among the German wounded:—

| 1914. | Returned to Service. | Deaths. | Recovered But Unfit. |
|---|---|---|---|
| August | 84.8 | 3.0 | 12.2 |
| September | 88.1 | 2.7 | 9.1 |
| October | 88.9 | 2.4 | 8.7 |
| November | 87.3 | 2.1 | 10.6 |
| December | 87.8 | 1.7 | 10.5 |
| 1915. | | | |
| January | 88.7 | 1.4 | 9.9 |
| February | 88.6 | 1.3 | 10.0 |
| March | 88.9 | 1.6 | 9.5 |
| April | 91.1 | 1.4 | 7.4 |
| Average | 88.5 | 1.9 | 9.6 |

STANDING OF THE AMERICAN RELIEF FUNDS.—On Aug. 10 the totals of the principal American relief funds for the European War reached the following amounts:—

| | N. Y. | N. E. |
|---|---|---|
| Red Cross Fund | $516,454.31 | |
| Committee of Mercy | 252,009.14 | |
| Serbian Fund | 120,542.56 | |
| Polish Fund | 54,400.75 | $49,578.05 |
| Persian Fund | 40,695.52 | |
| St. George's Fund | | 10,823.44 |

## BOSTON AND NEW ENGLAND.

MILK AND BABY HYGIENE ASSOCIATION.—It is reported that during the month of July, 1915, the Boston Milk and Baby Hygiene Association cared for 1960 babies in this city. The following physicians have been appointed in charge of the free clinics for well babies:—

Dr. Richard S. Eustis, Dr. John W. Hammond, Dr. Harry L. Rothblatt, Dr. W. W. Barker, Dr. Harold A. Gale, Dr. William W. Howell, Dr. Arthur B. Emmons, 2nd, Dr. Orville Chadwell, Dr. James K. Wardwell, Dr. K. G. Percy, Dr. Edwin T. Wyman, Dr. Mitchell Sisson, Dr. S. M. Pearl, Dr. S. W. Cornish, Dr. C. R. Draper, Dr. H. A. Durkin, Dr. H. Howard Flagg, Dr. Benjamin Friedman, Dr. Joseph I. Grover, Dr. Margaret Grogan, Dr. Lewis J. Hill, Dr. F. J. Larned, Dr. Z. R. Scott, Dr. Louis S. Silver.

HAEMORRHAGIC CATTLE SEPTICAEMIA IN BOLTON.—It is announced that two fatal cases of haemorrhagic septicemia among cattle in Bol-

ton, Mass., have recently been reported to the State Bureau of Animal Industry. Steps have been taken to prevent the spread of the disease.

Educational Work of the State Department of Health.—The State Department of Health has announced that it is prepared to supply free of charge moving picture films portraying lessons in general health and hygiene such as the dangers of unsanitary living conditions, typhoid fever, neglect in the care of children. A lecturer will accompany the films and explain them. It is hoped that schools and other organizations will be interested in this way to carry out the plans of the department of health to educate adults, as well as children, in matters of general hygiene.

Fumigation as a Method of Destroying Bacteria Discontinued.—It is reported that the Boston Board of Health, through its chairman, has announced its abandonment of the practice of fumigating rooms which have been occupied by patients with contagious diseases such as diphtheria and scarlet fever. In the belief that such germs are soon destroyed by light and air and are not transmitted by inanimate objects, making fumigation useless and wasteful, the Board of Health believes that emphasis should be placed on the prevention of contagion through convalescents, whose bodies offer a congenial host for bacteria and who, in spite of repeated negative tests, often prove to be unsuspected carriers of the disease from which they have recovered.

Meeting of the Massachusetts Association of Boards of Health.—At a meeting of the Massachusetts Association of Boards of Health at Pemberton, Mass., the subject of the control of tuberculosis was discussed from its legal side. A paper written by the late Chester Bryant, of the Haverhill Board of Health, urged the passage of laws providing boards of health with proper power to control the incorrigible consumptive. A committee was voted for, to arrange a more uniform system of departmental monthly and annual reports.

Value of Public Health Nurses.—In an interview published recently in the Boston daily press, Prof. Selskar M. Gunn, director of the recently established division of hygiene of the Massachusetts State Health Commission, is quoted as follows regarding the value of public health nurses in the community:—

"Of all the public agencies for saving life in Massachusetts, the most important is the public health or educational nurse. I have come to this opinion after a thorough analysis of the death rate and its causes in every town of the commonwealth. Any community can lower its death rate by employing public health nurses.

"No community of any size can hold up its head unless it maintains a nurse to advise and help the mothers save their babies from the dangers of hot weather, heavy clothing, bottle feeding and dirty milk, indigestible food, bad ventilation, filth, flies and general ignorance of the needs of sanitary precaution. So many of the diseases of babies are preventable that the infant mortality rate is the sanitary index of the community.

"In Massachusetts the death rate should be greatly lowered in the next year. Of 53,286 deaths in this state in the last year, for which we have reliable statistics, 9,971 were of babies less than a year and a half old and nearly half were victims of preventable disease. Summer diarrhea carried off 2,682, pneumonia 1,597, whooping cough 168, measles 156, and tuberculosis 180. Under ideal conditions these deaths could have been prevented. In the same year diphtheria claimed only 41 and scarlet fever only 14 under one year old.

"One-fifth of all deaths in Massachusetts, however, are deaths of infants. The first year is the critical year. That the second summer is the most dangerous one is a fallacy. In the state statistics before me, I find that when summer diarrhea carried off 2,682 babies under a year old, only 395 died between the ages of one and two. The only diseases that show a greater mortality in the second year than in the first are measles and whooping cough. A mother greatly minimizes the danger from these two diseases if she protects her children from them during the first five years of childhood.

"It is evident, therefore, that the surest way to lower the state death rate is by saving the infants. In this work the nurse is, in my opinion, about five times as effective as the sanitary inspector. He gets into the shops and the back yards. The nurse gets inside the mother's heart.

"The city of Boston employs fourteen public health nurses. Their work is supplemented by that of nurses supported by numerous private and semi-public institutions and by milk and hygiene stations. In some Massachusetts towns women's clubs are paying the public health nurse. Too many towns and cities have not yet begun to realize the great value of her service."

## Miscellany.

### MEDICAL FEES IN THE SIXTEENTH CENTURY.

In the issue of the *Lancet* for June 5 is published a series of extracts from the household account books preserved at Belvoir Castle among the historic documents belonging to the Duke of Rutland, ranging in date from 1522 to 1700. These accounts not only throw light on local and family history, social customs, man-

ners of living and cost of food, drink and costume, but contain also numerous charges for medical attendance, indicating the range of fees charged in a wealthy noble family during the sixteenth century. The following are a few examples of these payments recorded to physicians and apothecaries and other items of more or less direct or remote medical interest.

"1528.—Payde, be my Lorde's comaundement, to Doctor Freman, fysicion, xl*s*.

1530.—Item, to Doctor Freman, fusician, x*s*.—To Doctor Freman, fusician, for his paynes with my Lorde Ros, xx*c*. Item, to Doctor Bartlott, by my Lorde's commaundement, vij*s*, v*jd*.—Item, to Peerson the poticary for divers restoretyffes, vij*s*, iiij*d*.

1532.—Item, geven in rewarde to the mydde-wif and norys at the christenynge of Master Hervie's childe, xx*s*.

1533.—Item in reward, the xij day of *Julii*, to Roger Smyth poticarye, for his paynes, takyn with my Lord in his fevir, vij*li*, xiij*s*, iiij*d*; to him for such stuff as he spent abowt my Lord in the tyme of his sekeness, xxxij*s*, x*d*.—Item in reward at the same tyme to Doctor Bartlet, xxx*s*.—Item in reward to Doctor Freman the same tyme, xiij*s*, iiij*d*.—Item to a woman phicisian at Bingeham in the Vale, iij*s*, v*jd*.—Item to Roger Smyth, poticary, for my doughter Anne, iij*s*, iiij*d*.

1536.—Item to Doctor Clement for lookyng to my Lorde Roos when he was seke at Endfyld, xxx*s*.—Item to the same doctor at another tyme at Yorke Place, x*s*.

1537.—Item in reward to Master John the poticary for ij glasses of oyle of almons and for a medicen for my Lorde's childern for the wormes at ij tymes, x*s*, x*d*.

1540.—Paide in reward to Doctor Bill commyng to my Lord at Halywel, xx*s*.—Item payd to Doctor Edwardes for his reward, beyng with my Lord Roos at Croxton in his sekeness, and for his costes goyng to Cambrige for siv days at v*j*s, viij*d*, the day, iij*li*.

1541.—Item, the xxvijth day of February, to Mr. Leveret, the phesicion, for that he came to my Lady then and tarried at Belvoier iij days, x*s*.—Item, gyven in rewarde to Mr. Edwardes, phisicion, of Newarke, for his comyng to se Maistres Margaret Paston when she was seke, v*s*.—Item, gyven in reward to Mr. Leverett for mynystryng medecyns to my Lord Roose when he was seke, x*s*; and for the like mynystryng to Maistres Margaret Paston in her sekenes, xxii*s*, v*jd*.—Item, payd for a pynte of aquawyte, xij*d*.

1542.—Gevyn to Doctor Augustyne at dyverse tymes (over and beside iiij*li*, x*s*, in the price of a gowne of damask) lxxv*s*.—Gevyn to Doctor Buttes, xxij*s*, v*jd*.—Gevyn to Doctor Nicholas at dyverse tymes, viij*li*, x*s*, x*d*.—Gevyn to Doctor Crome at dyverse tymes (over and beside xj yardes of damask for a gowne, price iiij*li*, x*s*), lxxvij*s*, xj*d*.—Gevyn to Docter Bill at ij tymes, xl*s*.—Gevyn to Mr. Oliff, the Kinge's surgian, at diverse tymes (over and beside xj yardes of damask for a gowne, price iiij*li*, lj*s*, v*jd*), vij*li*, xiiij*s*, v*jd*.—Paid by Anthony Digby for ypocras when my Lorde was syke, v*j*s, viij*d*.

1543. (Account of the executors of the will of Thomas, Earl of Rutland re funeral expenses, &c.)—For the charges of the stufe that was occupied about the seering of the corps, and to the surgion for his penes, as apperithe by Thomas Disney's booke, xiij*s*; to the plummer for puttying the corps in lead, iiij*s*, iiij*d*; to Doctor Wendy for his paynes takyng about the seid Erle in his siknes and after, contyneyeng there by the space of ij days, v*jli*, iij*s*, x*d*.

1551.—Item to Doctour Wotton for his consaile in phisik to my Lord, x*s*.—Item to Goldring the potecary for marmalad and other thinges, x*s*.

1554.—Item to Docter Hyll, xx*s*.—Item to Doctor Wooton, the same daie, x*s*.—Item to Holland the surgion, the same daie, iij*s*, iij*d*.

1555.—Item in reward to John Rolpotey, my Lord's surgoin, by his commaund, xl*s*.—Item, by my Lorde's commaund, to the straunger that ys his surgion, x*s*.

1558.—Item to Doctor Peter and Doctor Hil at iij several times for their coming to my Lady, xxv*j*s, viij*d*.

1559.—Item paid for cariage of Bukston's water sent to my Lord of Penbrok, iiij*s*, iij*d*.

1590.—Item geven at the christenyng of Mr. Bassete's daughter, to mydweif and nurse, xx*s*.

1594.—Paid to Mr. Docter Hunton and Mr. Harrye Webster for commynge to Belvoyre to her Ladyship, xxx*s*.—Paid to George Sandwith, barber, for commynge to Belvoyre ij severall tymes to tryme his Lordship, v*s*.

1598.—Item for two bezer stones, v*jli*.

1599.—Item geven to Doctour Marbeck for the waters and phesicall thinges sent towardes Ireland, and for his paynes in providing them, x*li*.—Item geven to Mr. Goodrous, her Majeste's sergeant chirurgian, whom she sent to my Lord, v*li*.—Item geven to Mr. Thorne, chirurgian, v*jli*. xiij*s*, iiij*d*.—Item to Mr. Doctour Marbeck for his half yeares anuytie due at Our Lady Day, iij*li*, v*j*s, viij*d*.—Item paied to the apothecary for phisick for Capten Whitlock, xxv*j*s; and geven to Doctour Marbeck for his paynes about the Capten in his sicknes, by his Lordship's commandment, v*li*.

1600.—Item in rewarde to Doctour Marbeck for certen waters and other thinges which he bought and provided for my Lordes use in his jorney into Holland, and for his paynes, x*li*.

1604.—Paid to Mr. Docter Hunton in rewarde commyng to my Lady iij*li*, and to John Lucas his potticarie, xi*s*.—Paid to Mr. Docter Mumforde for commyng from London to mynister phisicke to mye Ladye, xv*li*.

1605.—Item, to Mr. Perk for letting his Lordship's blood, xxx*s*.

1606.—Item, to Sir Walter Raleighe's man that brought a water for my Lord for the col-

lieque, xx*s;* for half an oz. of muske to make plaister, xxx*s;* a pounde of tobacco sent to Belvoyre, xl*s;* tobacco pipes, v*s.*

1607.—Given to Mr. Rigesley, of Newarke, phisision, being sent for to come to Henry Lynforde, by my Lord his comaundiment, xxx*s.*—Given to Mr. Alton, of Nottingham, phisision, as in rewarde for attending of my Lady and mistris at Belvoer, v*li.*

1609.—Item paied to Mr. Doctour Percywaile, apothecary, for viij oz. of elixar of saltt, iij*li,* iij*s;* water distilled, a quart, vj*s;* pylles, ij*s,* vj*d.*

1611.—Item, for a plaster for the gowte from Mr. Crammer for my Lord, x*s.*

1612.—Item to Mr. Frederick and Mr. Guillian, chirurgians, for their attendance upon my Lord (Roger, Earl of Rutland) at Cambridge from the tyme of Mr. Guillian's comyng to Cambridge and for the incision made, j*li,* and for embalmyng the corps, xx*li.*

1614.—Paid Fredrick, the surgeon, for imbalming the corps of Sir Olliver Manners, xxx*li.*—Delyvered to Mr. Waters, of Stamffoord, when he was sent for to my Lord Roasse, beeinge not well, iij*li.*—Paied the same daie unto John Hilton, his pothecarie's man, for apothecarie stuffe, viij*s,* iiij*d.*—Delyvered to Mr. Doctor Ridgley, of Newark, for ten daies beeinge at Belvoire with my Lorde Rosse, x*li.*

1615.—To Doctor Ridgley, for beeing at Garradon with my Lorde Roosse, when he was not well, payd to him for vj daies, in goulde, vj*li,* xij*s.*

1618.—Paid to Docter Anthony for a dram of the essenc of gold, 6*li.*

1640, August 11th.—Item paid to Sir Daniell Delyne for two gree stones, whose virtue is good to cure the stone in the bladder or kydneyes, for which I (Earl of Rutland) have payd 3*li,* 5*s,* and am to have a twelv moneths tryall, and yf I do not like them I shall have 40*s* for them againe.

1652.—Paid to my honourable Ladye's hands for Docter Preedian, at twise, for his care of Lord Roose, 50*li.*—Paid Mr. Turnor that pretends to cure my Lord, 9*li,* 5*s.*"

One may question whether this last sentence be merely a fashion of phraseology, or whether it may perhaps contain some conscious or unconscious irony about Mr. Turnor's services.

## PETITION FOR TUBERCULOSIS NURSES.

The following petition has been presented to the city council of Los Angeles, California, to the end that a sufficient staff of tuberculosis nurses may be provided to further the work of the eradication of tuberculosis in that city. The initiative petition received about 20,000 signatures and passed at the June election by a vote of 47,359 to 25,681.

"To the Honorable, the City Council of the City of Los Angeles, County of Los Angeles, State of California,

"Whereas, New York City, with 165 municipal tuberculosis nurses has recorded a diminution in the number of cases of tuberculosis from 32,065 in 1910 to 22,752 in 1912; and a reduction in the death rate from pulmonary tuberculosis in Manhattan and the Bronx from 427 per hundred thousand in 1881 to 190 per hundred thousand of population in 1912, a reduction of 55%; and

"Whereas, the results obtained in New York City are ascribed largely to the employment of municipal tuberculosis nurses, in a communication from the General Medical Officer of the City of New York, Herman M. Biggs, dated Dec. 18, 1913; and

"Whereas, in the City of Boston, Massachusetts, 'all cases of tuberculosis reported are visited by nurses,—twenty-five in number,—paid by the city, and it is rare there now to find a neglected or abandoned case, and there has been a diminution in the total number of deaths from tuberculosis and also in the case rate'; and

"Whereas, the city of Baltimore, Maryland, with a force of 17 tuberculosis nurses has secured a reduction in both the cases and deaths from tuberculosis, so that the Commissioner of Health of that City declares that their work shows the need of many more tuberculosis nurses; and

"Whereas, the city of Buffalo, New York, with a force of 17 tuberculosis nurses, feels the need of more tuberculosis nurses; and

"Whereas, the city of Cleveland, Ohio, with 15 tuberculosis nurses and a record of good results, declares the need of more tuberculosis nurses; and

"Whereas, the city of Columbus, Ohio, has six tuberculosis nurses; and

"Whereas, the city of Los Angeles, California, has only one tuberculosis nurse and has shown an increase of about 50% in the reported cases of tuberculosis during the past year, and a large increase in the number of deaths from that disease; and

"Whereas, the work in the eastern cities, above referred to, has shown that a visiting tuberculosis nurse cannot satisfactorily take care of more than one hundred cases of tuberculosis; and

"Whereas, a recommendation similar to the following proposed ordinance, received the unanimous endorsement of the Nursing Commission of the city of Los Angeles, Jan. 6, 1914, and has been endorsed by many of the leading business men, firms and organizations paying taxes in the city of Los Angeles; therefore,

"The following ordinance is hereby proposed, to be adopted by the City Council of the city of Los Angeles, or, if the same be not adopted by said Council, the proposed ordinance then to be

submitted to a vote of the electors of the city of Los Angeles as provided in the Sections 198-a, 198-b, 198-c, 198-d, and 198-e of the Chapter of the city of Los Angeles governing the initiative; to wit:—

"An Ordinance Providing for the Employment of Municipal Visiting Tuberculosis Nurses.

"Section 1. The Health Commissioner of the city of Los Angeles shall and is hereby empowered and directed to employ, in the name of and for the city of Los Angeles, municipal visiting tuberculosis nurses, in the proportion of one such nurse per one hundred reported cases of tuberculosis in the City of Los Angeles.

"Sect. 2. The municipal visiting tuberculosis nurses thus employed by the Health Commissioner of the city of Los Angeles, shall be paid by the city of Los Angeles at the rate of compensation provided for Municipal Nurses in Section One of Ordinance No. 28, 179 (New Series).

"Sect. 3. It shall be the duty of the municipal visiting tuberculosis nurses of the city of Los Angeles to visit professionally all reported cases of tuberculosis in the city of Los Angeles, excluding those under treatment in public or private hospitals or sanatoria, unless requested in writing not to do so by the patient or physician in charge.

"Sect. 4. The Health Commissioner of the city of Los Angeles is hereby empowered to establish such supply stations as he may deem necessary from time to time for the professional use of the tuberculosis nurses provided for in this ordinance.

"Sect. 5. The Purchasing Agent of the city of Los Angeles is hereby directed to purchase on requisition from the Health Commissioner such supplies as the latter may from time to time deem necessary for the professional use of the tuberculosis nurses provided for in this ordinance.

"Sect. 6. The Health Commissioner shall divide the city of Los Angeles into appropriate sections or districts and shall assign one or more tuberculosis nurses to each and every section or district thus formed according to the number of cases of tuberculosis therein, exclusive of those under treatment in public or private hospitals or sanatoria.

"The tuberculosis nurses shall be held responsible for their respective sections, but may at the discretion of the Health Commissioner be given work outside of the sections to which they are assigned.

"Now, therefore, we the undersigned qualified electors of the said city of Los Angeles, do hereby petition your honorable body to adopt the said ordinance for the city of Los Angeles, or, if the same be not adopted by council, we hereby demand the submission of the said ordinance to a vote of the qualified electors of the said city of Los Angeles, in accordance with the sections of the city charter of the city of Los Angeles governing the initiative."

## MEDICAL BROTHERHOOD FOR THE FURTHERANCE OF INTERNATIONAL MORALITY.

THE following is the text of the appeal to which we have referred in previous issues of the JOURNAL, which was recently issued by Dr. S. J. Meltzer to the men and women engaged in medical practice and the advancement of the medical sciences.

"The present war among civilized nations has brought out impressively certain facts: that although there are civilized *individual* nations, we are still very far from having a civilized humanity—there is an abyss between *intra*national and *inter*national morality; that, no matter how cultured and enlightened nations may be, they still settle their international differences by brute force, by maiming and killing their adversaries; and, finally, that the present high development of science and invention in individual nations only serves to make the results of this war more destructive than any other in history.

"The war has demonstrated, however, one encouraging fact, namely, that among all the sciences and professions, the medical sciences and medical practice occupy an almost unique relationship to warfare, and that, among all the citizens of a country at war, medical men and women occupy a peculiar and distinctive position.

"No discovery in medical sciences has been utilized for the purpose of destroying or harming the enemy. Medical men in each of the warring countries are as courageous, as patriotic, as any other citizens, and are as ready to die or to be crippled for life in the service of their country as any other class of their fellow countrymen. Their services, however, consist in ministering to the sick and to the injured and in attending to their sanitary needs. Furthermore, they often risk their lives by venturing into the firing line to bring the injured to places of safety and to attend to their immediate needs. *In these heroic and humanitarian acts friend and foe are treated alike.* Finally, the majority of the members of the medical profession and of the medical journals of the neutral as well as of the warring countries, abstain from public utterances that might be grossly offensive to any of the belligerent nations.

"These facts—this advanced moral position in international relations which medicine and its followers are permitted to occupy in all civilized nations,—ought to be brought to the full consciousness of the men and women engaged in the medical sciences or in medical practice. Such a realization could not fail to have an elevating influence upon the medical profession itself, and would probably exert a favorable influence upon the development of international morality in general.

"At the dawn of history, medical men were frequently also the exponents of philosophy and morals. In the middle ages, when knowledge

became specialized, medical men more and more devoted their activity exclusively to medical practice. Because of its inefficiency at that time, medicine lost its prestige. In recent times, however, medicine is becoming an effective science: one marvelous discovery has followed another, and the efficiency of medical practice has been rapidly increasing. Medicine makes habitable to man hitherto uninhabitable parts of the world. It prevents disease; and, with increasing theoretical and practical efficiency, medicine is learning to alleviate and cure disease and injuries. Medical sciences and medical men have steadily risen in the esteem of civilized mankind. *May not the medical sciences and medical men become again the standard bearers of morality, especially of international morals?*

"To accomplish these objects, it is proposed to organize as large and effective an Association as may be possible, of men and women engaged in the medical sciences or in medical practice under the name of

"THE MEDICAL BROTHERHOOD FOR THE FURTHERANCE OF INTERNATIONAL MORALITY.

"It is obvious that such a Brotherhood could not exercise an important influence at once. But our modest expectation for prompt results should not prevent us from attempting now to take the first step in the right direction. Many important results have often had small beginnings.

"*A Committee of Physicians and Medical Investigators request you herewith to enroll as a member, and to declare your willingness to endorse and support the moral standard which the medical profession generally upholds when called upon to perform its patriotic duties in an international strife.*

"It should be expressly understood that it is not the object of the proposed Brotherhood to influence the feelings and views of any one regarding the problems involved in the present war. It is desired merely to bring to the full consciousness of the members of the medical profession the exceptional moral position which all civilized nations, even while at war, *permit* and *expect* medical men to occupy, at least as long as they remain in the medical profession and act in this capacity. This consciousness cannot fail to elevate the moral standards of physicians. Furthermore, after the close of the present war, the Brotherhood could, without doubt, facilitate the reunion of the members of the medical profession of all the nations which are now at war and increase good feelings among them. A humanitarian body, such as the proposed Brotherhood, if already in existence and ready for service, might and could be of the greatest usefulness in many ways."

## CONDITIONS OF NAVAL SURGERY IN THE EIGHTEENTH CENTURY.

IN the issue of the JOURNAL for Oct. 22, 1914, we published an article on Dr. Tobias Smollett and some of his experiences as a physician and novelist. In the issue of the JOURNAL for Dec. 17 Dr. William P. Coues called further attention to the description in Roderick Random of Smollett's clinical duties as a naval surgeon. In the issue of the *British Medical Journal* for Feb. 6 appears still further comment on the conditions of the sick sailors in Smollett's time and the details of medical practice as he must have known them:—

"About fifty miserable distempered wretches suspended in rows, so huddled one upon another that not more than 14 inches space was allowed for each with his bed and bedding; and deprived of the light of day as well as of fresh air; breathing nothing but a noisome atmosphere of the morbid steams exhaling from their own excrements and diseased bodies, devoured with vermin, hatched in the filth that surrounded them, and destitute of every convenience necessary for people in that helpless condition.

"Clysters were administered by a mate who crept on all fours under the hammocks, and forcing up his head between two kept them asunder with one shoulder till he had done his duty. Roderick Random tried to follow his example, with consequences of a Zolaesque character which need not be described. He was besides fixed as it were, in a pillory between two hammocks, and had to be rescued when he was on the verge of strangulation. He had to go close-shaved by way of preserving himself from the parasites which infested the sick berth.

"We get a picture of the cockpit during an action where the surgeon hid himself, and was only induced to get up by threats that a complaint would be made to the Admiral. Fortifying himself with rum, he went to work, and arms and legs were hewn off without mercy. He could not, however, be got to go up on deck to dress a wound received by the captain.

"Random fell ill with what he calls bilious fever, and owed his life to a grateful sergeant whose nose he had mended after a wound during the fight. This man gave him the use of his own berth in the middle deck, which was well aired. They got a new captain, a dandy who sent for Random to bleed him, but distrusted his skill when he saw him. He said to his valet, who from time to time applied a smelling-bottle to his nose: 'Dost thou think this wretch'—meaning Random—'will do me no injury? May I venture to submit my arm to him?' He then politely asked Random if he had ever blooded anybody but brutes; before the operation could be performed, his own surgeon, in whom he had more confidence, turned up. This picture is painted with the detail of a Dutch artist, and apparently Carlyle thought it a faithful pic-

ture, although to some it may seem not untinged with malice, for Smollett had, no doubt, to endure many indignities more serious than that put upon him by the dandy captain. However this may be, the picture may give a notion of the medical service of the British Navy in the middle of the eighteenth century, and of the way in which the patients—and the medical men—were treated."

## Correspondence.

### MIXED INFECTION IN TUBERCULOSIS.

29 GLOUCESTER STREET,
BOSTON, August 5, 1915.

*Mr. Editor:* May I be allowed to comment on your editorial entitled "Mixed Infection in Tuberculosis," which appeared in the JOURNAL of July 22, 1915?

While the entire subject of the rôle played by a superadded mixed infection in tuberculous processes is still one concerning which there is much dispute, I doubt very much whether the majority of investigators would in the slightest degree agree with the opinion expressed in your editorial. The work of Dr. Inman coming from the laboratory of the Brompton Hospital in London, which appeared in the London *Lancet* a year ago, is a detailed, painstaking, and most thorough investigation of this subject. Coming from such authority as this, his conclusions merit serious consideration. Dr. Inman believes, as a result of this investigation, that the part played by mixed infections is a very minor one: and that the great majority of the serious symptoms, temperature, rapid pulse, loss of weight and strength, etc., are caused by the tubercle bacillus and its toxins and not by the pyogenic organisms.

While it is of course true that in practically every case these mixed organisms are present, I do not believe that it has been proved that they play an important part in the symptomatology of the disease. The statement which you make, "There is a positive danger in interfering with such infections (cold abscesses in tubercular conditions) for fear of converting these sterile tubercular abscesses into pyogenic abscesses, with serious effect to the patient," is interesting, but hardly in accordance with what has come to be recognized as the best treatment of the condition.

I would strongly disagree with your statement that "In uncomplicated tubercular infection there is tendency to subnormal temperature, and the afternoon rise of temperature is not a universal feature in pulmonary tuberculosis." While in certain instances this statement is true, in the great majority of instances such is not the case.

The statement that "Absence of leukocytosis is considered good evidence of the absence of cavity in cases where the physical signs seem to point, but uncertainly, to that condition" is an interesting point, but one that would merit further study and investigation before being accepted.

It seems to me that the statements expressed in this editorial are liable to cause a certain amount of harm in that they would tend to lessen our respect for the tubercle bacillus and its powers and to lay more stress on what, personally, I believe to be the comparatively harmless organisms which so often accompany the tubercle bacillus itself.

Very truly yours,
JOHN B. HAWES, 2D, M.D.

### BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING AUGUST 7, 1915.

CONTRIBUTIONS.

| | |
|---|---|
| Marwick, Mitchell, Peat & Co., chartered accountants, three audits of the Treasurer's accounts, March 20, May 30, and June 20, 1915. | |
| Dr. E. W. Smith, Meriden, Conn. | $ 10.00 |
| Receipts for the week ending August 7 | 10.00 |
| Previously reported receipts | 7769.84 |
| Total receipts | $7779.84 |
| Previously reported disbursements: | |
| 1625 standard boxes of food @ $2.20 | $3575.00 |
| 1274 standard boxes of food @ $2.30 | 2930.20 |
| 353 standard boxes of food @ $2.28 | 804.84 |
| Total disbursements | $7310.04 |
| Balance | $ 469.80 |

F. F. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

### SOCIETY NOTICE.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The twenty-fifth annual meeting of the Association will be held at Atlantic City, September 14, 15 and 16, 1915, with headquarters at the Hotel Chalfonte.

All physicians interested in physical therapeutics are invited to attend.

J. WILLARD TRAVELL, M.D., *Secretary.*

### APPOINTMENTS.

UNIVERSITY OF LONDON.—*Dr. Francis Arthur Bainbridge*, of the University of Durham, has been appointed professor of physiology at St. Bartholomew's Hospital Medical School.

### RECENT DEATHS.

DR. ARTHUR T. HILLS, who died recently at Nashua, N. H., was born in Hudson, N. H., and had been a practising physician in New York for many years.

DR. HORATIO N. SPENCER, a practising physician of St. Louis, died on August 7 in Atlantic City, N. J.

DR. THOMAS ALOYSIUS MALONEY, of Springfield, Mass., a graduate of the New York University Medical College in 1898, died at New Britain, Conn., July 13, 1915, aged 40. He was a Fellow of The Massachusetts Medical Society.

DR. MARC FONTAINE, who died on Aug. 9 at Spencer, Mass., was born at St. Huges, Quebec, in 1849. He was educated at Nicolet College and received his medical degree from Victoria College, Montreal. He practised his profession in Spencer for twenty-five years and since that time has lived in retirement.

DR. MARK B. RODDY, who died of appendicitis on Aug. 12, at Lynn, Mass., was born at Fitchburg, Mass., in 1887. He graduated in 1910 from the Baltimore Medical School and since that time had practised his profession in Lynn. He was not married.

DR. JAMES L. WHEATON, who died on Aug 12 at Pawtucket, R. I., was born in Seekonk, Mass., on March 14, 1823. He graduated in 1846 from the Harvard Medical School and from the Berkshire Medical School in 1847. Since that time he had practised his profession continuously in Pawtucket. He is survived by two aged daughters, and by a son, also a physician.